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March 1996 • Number 26

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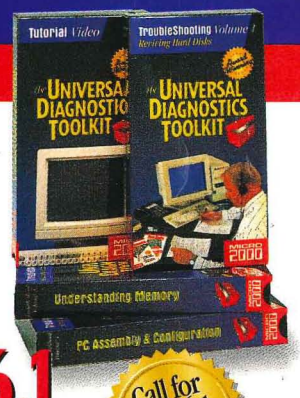

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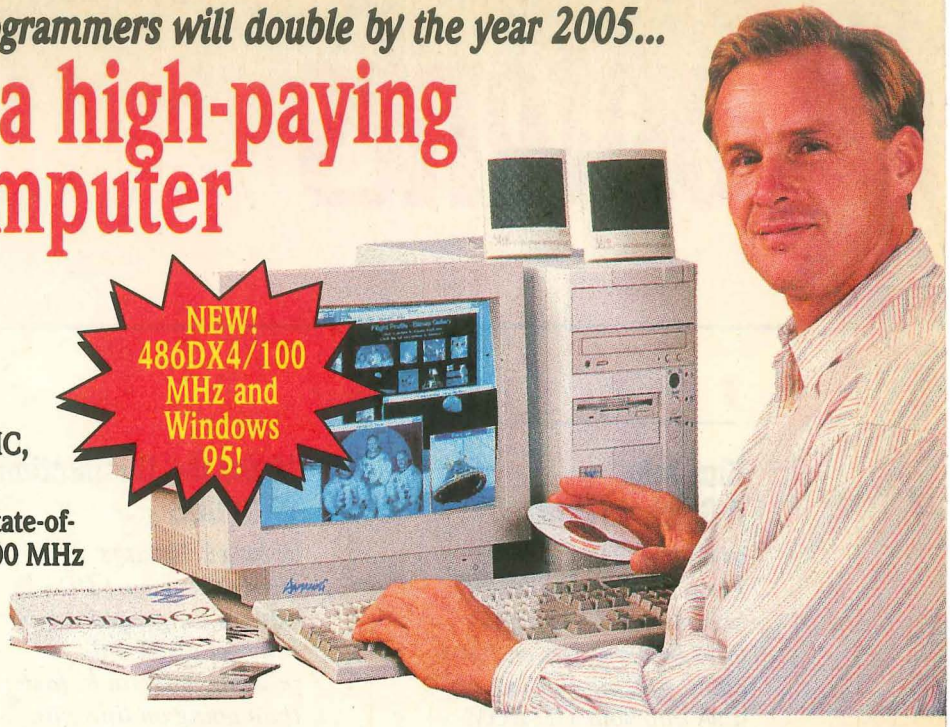

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Contents

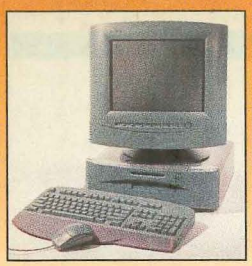
On the Cover

Pictured on the cover is the new Acer Aspire desktop system (also available in minitower configuration), with 3.5-inch floppy drive and quad-speed CD-ROM drive. The Aspire line includes several models, from 100MHz 486 machines to 133MHz Pentiums. Matching 14-, 15-, and 17-inch multimedia monitors are available. Cover photo by Larry Dunn.

FEATURES

DEPARTMENTS

COLUMNS



DOS WORLD

Number 26, March 1996

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Letters to the Editor

Three's Company

I'd like to assure Bob Landig ["Letters to the Editor," *DOS World* #24, November 1995, page 6] that he and Roland Curit aren't in a minority of two when it comes to Dan Gookin's "The Seven Deadly DOS Commands." A minority of three, however, might not be much better.

It's disheartening to see *DOS World* follow Gookin's condescending approach to helping people use their computers better. A good example appears in the sidebar "Two Commands to Avoid" ["PATHs That Perform," November 1995, page 32], in which you tell people to avoid using SUBST and APPEND. What nonsense!

Although I agree that the APPEND command isn't particularly useful, SUBST may well be the most powerful of all DOS commands. For a DOS magazine to take the position that *power* equals *danger* is downright silly.

I use SUBST extensively. Except with programs that are flawed, I've never had a problem with it. And when such a problem arises, I don't quit using SUBST; I quit using the flawed software.

Of course, you don't use SUBST with disk-compression or formatting software, or with any program designed to be applied to a real disk. It should be clear to anyone who's literate that a substituted drive isn't a real drive.

The really ironic point here is that people who never read their manuals wouldn't know that these "dangerous" commands even exist if you didn't keep warning them. Wait a minute—did I just miss something subtle? Are you by any chance using reverse psychology to get people to learn to use DOS by trying to scare them away from it?

Glenn Stumpff
Dayton, Ohio

The Name of the Game

I agree that *DOS World* is at a crossroads ["DOS at a Crossroads with Windows 95," *DOS World* #24, November 1995, page 4]. Although I don't plan to move to Windows 95, other readers will want command-line, batch-file, Basic, and macro advice for Win95. Your magazine is best positioned to give it.

With that in mind, maybe the magazine needs a new name. But, actually, there's nothing wrong with *DOS World*. Currently, *DOS* refers to IO.SYS, MSDOS.SYS, CONFIG.SYS, and AUTOEXEC.BAT. What will Microsoft call the part of Win95 that runs CONFIG.SYS and AUTOEXEC.BAT? What will it call the command-line interface? Why not . . . DOS?

Bill Weitze
CompuServe

ERRORS AND OMISSIONS

Out to Lunch

In the sidebar "Do-It-Yourself DEFRAG" ["Rev Up Your Hard Disk With DEFRAG," *DOS World* #23, September 1995, page 29], Tony Roberts suggests a way to automate hard-disk defragmentation. Unfortunately, if you follow his directions and type DSKDFRAG after bypassing CONFIG.SYS and AUTOEXEC.BAT, nothing happens. Why? The reason is that if you abort the boot sequence and don't give DOS access to AUTOEXEC.BAT and its PATH statement, the poor machine won't know where to find DSKDFRAG.

I've started a pool among my friends to bet on the number of comments you'll receive on this point. My bet is 2337. I think I have a good chance of winning.

Milt Smith
Chicago, Illinois

Your point is well taken, but your guess didn't even come close. You were the sole reader who took the time to report our mistake. —Eds.

Broken Windows

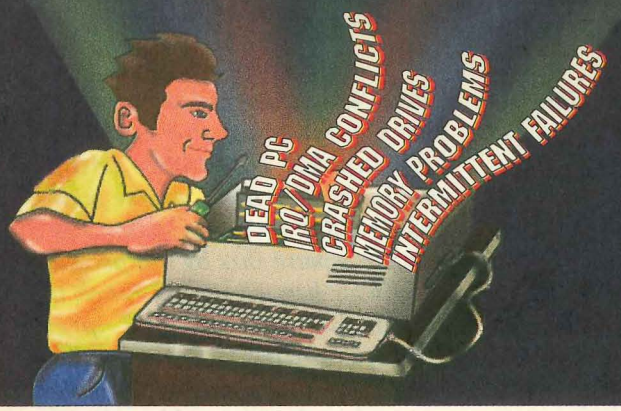
I don't do Windows, but my father does. Because he likes to use both DOS and Windows, I sent him a copy of Robert Hummel's "Mining for DOS in Win95" [*DOS World* #24, November 1995, page 57]. I found his revelations about Bill Gates's little white lies intriguing. In particular, I thought Hummel's trick of telling Windows to shut down and then typing C08Ø would interest my father.

Unfortunately, the technique doesn't work with his computer and his version of Windows 95.

Glenn Stumpff
Dayton, Ohio

"Inside DOS 7" [November 1995, page 26] and "Mining for DOS in Win95" explain how to modify MSDOS.SYS so that you can revert to your previous version of DOS. But both articles fail to mention one important step.

During installation of Win95, the system asks whether you want to make backups of several of the



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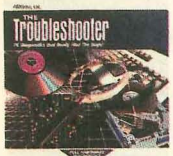

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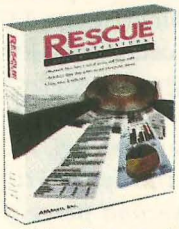

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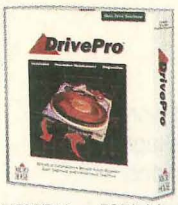

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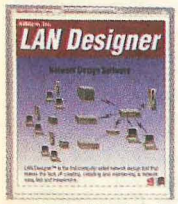

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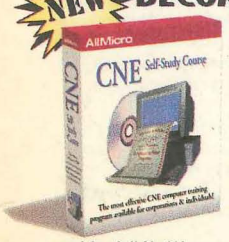

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DR

configuration files from your old operating system. If you answer no, you don't see an option for booting to a previous version of DOS in the boot menu.

Jeffrey York
Ft. Hood, Texas

Because several readers have written to say they can't get Windows 95's multiboot option to work for them, we'd like to add a couple of footnotes to the articles that Stumpff and York mention.

First, if you want to take advantage of the dual-boot option, you should install Win95 in its own directory. (For example, you might leave Windows 3.1 in C:\WINDOWS and put Win95 into C:\WIN95.) Although you can install dual booting later if you don't take this precaution, it's time-consuming to do so.

Second, be sure that Win95's MSDOS.SYS contains the following line in its [OPTIONS] section:

```
BOOTMULTI=1
```

One further word of warning: The command C08Ø is undocumented and doesn't work on all systems.

—Eds.

Pardon Me

In the November 1995 issue of DOS World, *"Best of the Batch" (page 14) presented a batch file called LOAD.BAT that contained a typographical error. In line 19 (the first line directly under the subroutine label :LP), the omega symbol was inadvertently inserted before the second percent symbol. The line should read:*

```
SET ORIG=%CMD%Ω
```

Also, the article failed to mention that you must not end LOAD.BAT's last line, SET FILENAME=, with a carriage return. If you're using DOS's Edit program (EDIT.COM), you can ensure this by not pressing the Enter key when you reach the end of the line. Instead, press Ctrl+P, then Ctrl+Z. Save the file. If you don't have Edit, here's a less convenient but passable solution:

1. *Type the batch file except for the last line and save it.*
2. *Go to DOS and type* `COPY CON TEMP.FIL`.
3. *Type the last line:* `SET FILENAME=`. *Don't press the Enter key.*
4. *Press Ctrl+Z, Enter. DOS saves the line as TEMP.FIL.*
5. *At the DOS prompt, type* `LOAD-.BAT+TEMP.FIL LOAD.BAT`.
6. *DOS asks you whether you want to overwrite LOAD.BAT. Answer yes.*
7. *DOS then merges the two files under the name LOAD.BAT.*

—Eric Maloney

DOS Tip

Hello Out There

Installing internal modems can be frustrating. If the modem doesn't work after you install it and then try to dial out using your communications package, you won't know whether the hardware, the software, or the communications (COM) port setting is at fault. Here's a quick way to check the COM-port assignment of a Hayes-compatible modem.

On most modems, the device's pins or switches determine the COM port to which the modem is set. If you're lucky, the product's manual will tell you which settings to use for each of your computer's COM ports, which are numbered from 1 to 4. Set the pins to the correct positions for the port you want. If you don't know which port to use, try COM2. Often a mouse is set up to use COM1, and the two devices can't share the port.

After you set the COM port, test the hardware by typing this command at the DOS prompt:

```
ECHO ATDTphoneCOMx
```

where *phone* is an acceptable phone number and *x* is the port number. (This is only a test; no communication will take place, provided you hang up quickly enough.) For example, if you want to use COM2 to call 555-1234, type this command:

```
ECHO ATDT555-1234>COM2
```

If you hear a dial tone, the modem and the COM port are working, and you're ready to test your communications package. To hang up, type:

```
ECHO ATH>COM2
```

If you don't hear a dial tone, you've chosen the wrong COM port or set the modem's pins incorrectly. Change the settings and repeat the first ECHO command above until you hear the dial tone.

—Dan Keen

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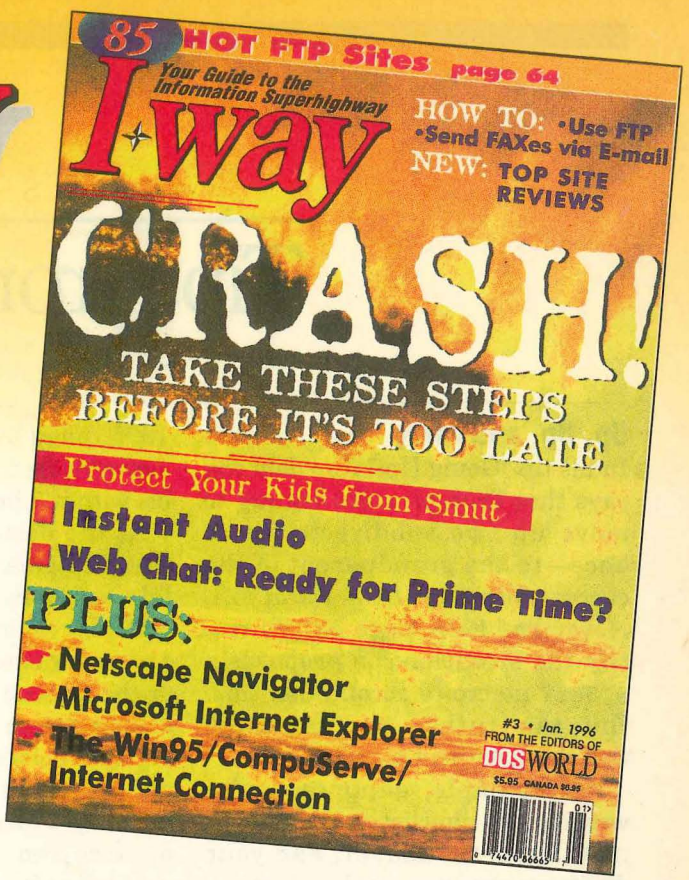

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Tips from Readers

Up, Up, and Away

In his tip "Going Up!" Ken Johnson says that DOS provides no way to move up two subdirectories at once—to the grandparent of the current directory [*DOS World* #24, November 1995, page 58]. To rectify the situation, he proposes a DOSKEY macro to accomplish this. But, the truth is, you can make this move without a macro.

For example, suppose you're working in a directory called C:\WINDOWS\MSAPPS\GRHFLT, and your directory structure looks like this:

```
WINDOWS
  MSAPPS
    GRHFLT
  SYSTEM
```

You can get to C:\WINDOWS by typing:

```
CD ..\..
```

Furthermore, you can get to C:\WINDOWS\SYSTEM by typing:

```
CD ..\..\SYSTEM
```

S.R. Tarrant
St. Augustine, Florida

You're right, of course. But in the long run, Johnson's DOSKEY macro is easier, because you don't have to reach for the backslash key to move up two levels. You simply type three periods. —*Eds.*

From the Archives

In a recent "Shareware Exchange," Harry J. Geiser mentioned that he likes LIST.COM, but has trouble using FV.COM and LIST.COM to read the contents of archived files on a CD-ROM drive [*DOS World* #24, November 1995, page 22]. Hardin Brothers acknowledged that he, too, has trouble with it. I have a solution.

As the documentation for LIST.COM explains, the ViewArc feature lets you view the directory of an ordinary archive file (one with an ARC or ZIP extension, for example) or the directory of a self-extracting COM or EXE archive file. To run it, you must place FV.COM in your path and make sure you have 140K of memory available. After viewing an archived file's directory, you may press Esc to return to the file-selection menu or Alt+I to display a file within the archive.

The program writes the directory listing to a temporary file called FVFVFVFV.FV$, placing this file in the current directory. To tell LIST to place this file elsewhere, you set an environment variable called LIST. For example, if you want to put all files extracted with ViewArc or Alt+I into the \TEMP directory on drive D, you must issue a command such as this one before executing LIST:

```
SET LIST=D:\TEMP
```

Because CD-ROMs are read-only, FV.COM can't create a temporary file in the current directory of the drive it's reading. You can get around this problem by setting up a RAM drive and adding two lines such as these to your AUTOEXEC.BAT:

```
MD F:\TMP
SET LIST=F:\TMP
```

where F: is your RAM drive.

Tom Dye
Vineland, New Jersey

Do You DISKCOPY?

You can copy files from one floppy disk to another disk in the same drive in several ways. One trick is to make sure there's an extra drive letter available by adding a LASTDRIVE=*x* command to your CONFIG.SYS file, where *x* is the next free drive letter. Then use DRIVER.SYS to assign that letter to a virtual floppy drive. If you want to use drive B for this purpose, and it's a 1.44MB drive, the command should read:

```
DEVICE=C:\DOS\DRIVER.SYS /D:1 F:7
```

Unfortunately, if you deal with long files, the degree of disk swapping involved in this sort of copy operation will drive you crazy. It's faster and easier to copy the files to a RAM drive or your hard drive and then copy them from there to the target disk. If you don't want to take the trouble to set up a RAM drive, however, you can get the job done with this command:

```
DISKCOPY B: B:
```

If necessary, you can then delete from the target disk any files you don't need.

Before you try this trick, note that DISKCOPY won't work if the disks have different formats—for example, if one is formatted to hold 720K and the other is a 1.44MB disk. Several shareware programs, however, let you overcome this barrier. The *DOS World* BBS [see page 64 for dialing information] offers three files that handle this task: DC49.ZIP, DCOPY.ZIP, and COPYQM.ZIP.

Frederick L. Sohn
New York, New York

There's No Escape

I don't like having to reach across the keyboard every time I'm working in DOS's Edit program and want to use Ctrl+P, Esc to create the ASCII escape symbol. Instead, I press Ctrl+P,[. It has exactly the same effect.

Victor Pearce
Memphis, Tennessee

Where's the Beep?

In "Mastering Your Batch-File Tools" [*DOS World* #23, September 1995, page 34], Hardin Brothers shows how you may use "unusual" keys, such as Esc or the function keys, as selection options for the CHOICE command. He points out, however, that because the scan codes for these special keys start with a zero, the computer beeps when executing such selections.

You can eliminate this problem if you swap a special key (for example Esc or F1) for a key whose scan code doesn't start with zero and then use the swapped key for one of your choices. This trick requires that you first load ANSI.SYS in your CONFIG.SYS file:

```
DEVICE=C:\DOS\ANSI.SYS
```

For example, if you want to swap the Esc key (0;27) for the underscore (101), use this command:

```
ECHO ←[0;27;101p
```

Be sure to type the *p* as a lowercase letter. You produce the left arrow in DOS's Edit program by pressing Ctrl+P, Esc.

The corresponding CHOICE command should look like this:

```
CHOICE /C:ABCDE_ /N Make Selection:
```

Whenever you press the Esc key, CHOICE interprets it as the sixth choice, the underscore. Voilà—no beep. (If the cursor is the underscore, the user choice is invisible.) Just remember to undo the swap when the batch file ends:

```
ECHO ←[0;27;0;27p
```

Andrew Kehoe
New York, New York

Submit tips on disk to DOS World, 86 Elm Street, Peterborough, NH 03458, or electronically via CompuServe (75300,2357), the Internet (75300.2357 @compuserve.com or editors@iway.mv.com), or the DOS World BBS (603-924-3181; 8,N,1).

READER FORUM

It's Just Not The Same Anymore

by Hardin Brothers

There was a time when nearly everyone with a PC used the same version of DOS, the same versions of basic applications, and almost the same hardware setup. That's no longer true. This month's questions range from DOS to Windows, from the command line to batch files, and from hardware to software difficulties. If you think you know all the answers, I'll also present a problem I can't solve—but that I hope some of you can.

The days of common solutions for common problems have come and gone. Although computing remedies are more plentiful than ever, some mysteries simply go unsolved.

That Glazed-Over Feeling

I recently upgraded my video adapter and was astonished to find that it displays slashed zeros instead of the dotted zeros of my previous adapter. The manufacturer told me that slashed zeros conform to ANSI standards. If so, why do so many other video boards use dotted zeros? And why do Microsoft's manuals use them? The difference isn't trivial for me. I have to display and read a lot of numbers, and I find it difficult to distinguish between slashed zeros and eights. Also, I can't tell the difference between the two if I capture and reduce a screen of numbers.

Charles H. Stones
Portland, Oregon

My experience has been just the opposite of yours: I much prefer slashed zeros and find them easier to read. But my preferences don't help you much.

I assume that you're working in DOS text mode. In Windows (including a DOS session running in a window), it's easy to pick a different font. In DOS graphics modes, you can switch fonts if your software allows it.

DOS text modes are different, because the default font is shipped in the video adapter's ROM. Manufacturers choose a font based on their own preferences and their customers'. But all is not lost if you're using an EGA or VGA adapter; you can easily define and install any text font you prefer.

If you're an experienced assembly-language programmer, or if you know how to use interrupts in C, QuickBasic (*not* QBasic), or Pascal, creating and installing new text fonts is a simple task. Any good book on the EGA or VGA video system, and many books about DOS and video BIOS interrupts, will have the information you need.

You can also choose from among dozens of shareware programs that let you select or create a new font and use it for EGA or VGA text mode. Often, you must choose or create a new font for each screen resolution you use; for example, you can use one font for a screen in standard 80 columns by 25 rows and another for 80 columns by 50 rows. Some of these programs include memory-resident (TSR) components that will reload your chosen font even if a program resets the video card. With other programs, you must reload the font yourself, which makes them much less useful. The problem is that many DOS applications reset the video card (and reload the default font set) each time they want to clear the screen. That's why you'll need a TSR to reload your selected text font.

In addition to the font loaders and editors, I've found a couple of "font packs" for VGA text mode—collections of characters in a variety of styles for everything

from clearer standard characters to script and even Arabic and other foreign alphabets. Fancy fonts are seldom acceptable for everyday use, but they make for a pleasant change of pace in your computing.

If you want to work with commercial software, the best text-mode font program I've used is Datawatch Corp.'s **UltraVision** ($99.95 desktop version, EGA or VGA; $49.95 laptop version; 800-445-3311). I've used UltraVision in the past—in the days of fuzzy EGA and VGA monitors—and loved it for its ability to display a clear, crisp screen.

Whether you write a program yourself, use shareware, or buy a commercial program, you don't have to live with the fonts included in your video adapter's RAM. All EGA and VGA adapters let you pick your own text-mode fonts if you have appropriate software. I've uploaded a shareware program called **CVFONT.ZIP** to the *DOS World* BBS (File Area 5) to get you started. (See page 64 for dialing instructions.)

Noting the Date

I use the DIR command to create catalogs of various floppy disks and directories. Often, I print them for reference. The only things my catalogs are missing are the dates when I created them. Is there an easy way to add the date to a directory printout?

Bob Gromer
Mesa, Arizona

If you're willing to use a batch file to create your catalogs, there are several ways to add the date. One method is to create a new file with the name `!.!`, and then list files by name (`DIR /ON`), date and time (`DIR /O-D`), or extension (`DIR /OE`). Once the listing is done, you can delete the file. If you use any of these DIR sortings, the file called ! will be listed first, so the current date and time of the catalog will be the same as the date and time of the first file shown. The important lines of the batch file look something like this:

```
ECHO. > !.!
DIR /ON
DEL !
```

Okay, I admit that the results of that approach aren't very elegant, because the time stamp you want is part of the listing itself. What you probably want is the date at the top of the page, then the directory listing below it. One way to print the date is to combine the ECHO, DATE, and FIND commands like this:

```
ECHO. | DATE | FIND "Current" > PRN
```

That will send a line like this to the printer:

```
Current date is Mon 12-25-1995
```

The next line of the batch file could print the directory:

```
DIR /ON >PRN
```

If you prefer, you could send these commands to a file instead of the printer. There are other ways to find the date. For example, your batch file could start a simple QBasic program that prints the current date. Or you might want to use the PROMPT information I described in a recent "Batch-File Medic" article ("PROMPT Delivery," *DOS World* #21, May 1995, page 37).

This should give you enough ideas to develop a cataloging batch file that will create just the kinds of reports that will be most useful to you.

Give Me a Break

Can you provide a practical way to disable (and enable again) the Ctrl+C and Ctrl+Break keys? I need to make it impossible (short of rebooting) for users to break out of portions of a compiled Basic program. I found a routine in an old book that was supposedly designed for this purpose, but it didn't seem to work on my computer. After a DEF SEG = 0, it used PEEKs and POKEs to copy values from locations 112 to 155 into locations 108 to 111.

Clyde Hussey
Sylvia, North Carolina

The "old" technique you describe essentially changes every Ctrl+C or Ctrl+Break into a timer tick. Its effect is to advance DOS's clock by about one 18th of a second every time you press Ctrl+C or Ctrl+Break, while avoiding the regular effects of those key combinations. That should work (assuming that you restore the original interrupts when you're done), but it won't work in many of the modern forms of Basic, including QBasic.

The problem is that QBasic and QuickBasic programs aren't "standard" in their use of the keyboard. Instead of simply letting the computer handle the keyboard and then reading input from either the BIOS or DOS, modern forms of Basic take over all keyboard processing themselves. That lets QBasic react to key combinations, such as Alt with the plus- and minus-sign keys (which change the size of the current window), that a "standard" program can't detect.

This unusual use of the keyboard produces one big advantage for QBasic users: If you press Ctrl+Break

while a program is running, you return to the QBasic editor. If you press Ctrl+Break while most programs are running, they dump you back at the DOS prompt.

I thought briefly about using the Break key's scan code and the ON KEY command to turn off Ctrl+Break processing, but a quick look at a reference book showed me that was impossible. Instead of the single hexadecimal scan code most keys send to the computer, the Pause/Break key sends a 6-byte scan code from the keyboard to the computer.

So how can you disable Ctrl+Break in a Basic program? If anyone has a method of disabling Ctrl+Break in QBasic, I'd like to hear about it. In QuickBasic, the easiest way is to use an add-on package called **PDQ**, from Full Moon Software ($149; 860-350-6120). Not only does this package include extensions to standard QuickBasic, it also makes your programs much smaller and faster than standard QBasic programs. Other add-on packages may offer the same kinds of additional commands.

Mixed Messages in Windows

I've deleted all the DOS and Windows files I don't need, according to your instructions in "Streamlining Directories," DOS World *Special Issue #5 ["Running DOS & Windows: 2nd Edition," February 1995, page 34]. But I still have two problems. First, every time I start Windows, I see an error message stating that Windows' 32-bit disk driver (WDCTRL) is incompatible with my hard-disk controller. I then have to press a key to start Windows without the 32-bit disk driver.*

Once I'm in Windows, when I start an application, I see a message that says, "Insufficient memory for application's required space. Decrease PIF KB required or quit one or more applications, or free up disk space, to increase available memory." I've just started using a computer, so I don't understand these messages. What should I do to overcome them?

Austin Uzama
Tokyo, Japan

At first glance, it sounds as though you have two different problems here—and you may have. But you may be able to solve everything at one time.

First, I'd guess that you've set up Windows to use 32-bit disk access but, for some reason, it can't. One possible reason is that your hard disk may not comply with the Western Digital 1003 standard. But whatever the reason, you don't need to see that message every time you start Windows.

With Windows running, open Control Panel and its 386 Enhanced Mode tool. Click on the Virtual Memory button and then the Change button. In the check box at the bottom of the window, click to remove the check in front of Use 32-Bit Disk Access. That will turn off the pesky message each time you boot.

Now check your swap-file settings; my guess is that your system has either a very small swap file or none at all. Because you won't be using 32-bit disk access, it won't make too much difference whether you use a temporary or a permanent swap file. In either case, however, you need a big one. In Windows 3.1, the swap file should be at least as large as the amount of physical RAM in your system, and preferably larger. If you don't have enough disk space for the swap file, you'll have to remove some files from your hard disk before you set the swap-file size.

Once you've set a swap file and turned off 32-bit disk access, close the Virtual Memory window. Then reboot your computer to register the changes with Windows. That should solve your problems.

If you still have difficulty starting a DOS application, you'll have to take a look at its PIF (program-information file). To find the name of the PIF, first select (click once) the icon you use to start the program; then select File/Properties from Program Manager's menu. You'll see the name of the PIF file in the ensuing dialog box.

Close that dialog box and start PIF Editor, which should be in the Main program group. Load the PIF file that starts the application, or _DEFAULT.PIF if the program doesn't start with a PIF file. Look at the Memory Requirements line. Set KB Required to a low value, such as 128. Make sure that KB Desired is set to 640, or even lower for a small application. Look at the EMS and XMS Memory Requirements. If you're editing _DEFAULT.PIF, set both requirements to 0 (zero) and 1024. If you're editing a PIF for a specific application, use the same settings unless the program requires either expanded (EMS) or extended (XMS) memory to run. In that case, set one line to 0 and 0, and the other line to the minimum and maximum amounts of extra memory the program needs. The program's documentation should explain how much extra memory it needs and whether it needs EMS or XMS memory. If it can use either, choose XMS instead of EMS because the program will run a little faster and more smoothly.

When you're done, save the PIF file and close PIF Editor; then try to start the program that's been giving you trouble. A few DOS applications, notably graphics-intensive games, may not run from Windows no matter how you fiddle with the PIF settings. But most will run once you've set the PIF correctly. If you still have problems, seek technical help by calling the publisher of the DOS application. ■

If you need help with something that has appeared in DOS World, *write to "Reader Forum,"* DOS World, *86 Elm St., Peterborough, NH 03458. Include a copy of your AUTOEXEC.BAT and CONFIG.SYS files on disk if you have particular problems with software or hardware conflicts and compatibility.*

Best of the Batch

GET IT IN WRITING

The accompanying program, HEADER.BAT, prints any text file with a header containing the file's name, the date, and the time. It also gives you the option of attaching comments. The program is useful for keeping a paper record of revisions you might make to AUTOEXEC.BAT, CONFIG.SYS, or your batch files.

Easy Does It

To use HEADER.BAT, type HEADER followed by the name of the file you're printing. For example:

```
HEADER AUTOEXEC.BAT /F
```

The /F switch is optional; it tells the program to automatically send a form feed after it prints the file. Otherwise, Header will give you the option of no form feed, which lets you print documents continuously instead of on separate sheets of paper.

HEADER.BAT can be decorative and colorful if you use ANSI escape codes. Or you can take a barebones approach that does no more than get the job done.

The same is true for the header information echoed to the printer. You can use printer escape codes to produce text in italics with double-strike and double-width effects or surrounded by a border.

Case, Environment Space, And Other Matters

HEADER.BAT begins by saving the current path in the environment under the name OLDPATH, so that HEADER.BAT can use the PATH com-

HEADER.BAT adds a filename, date, time, and comments to your printouts.

```
::HEADER.BAT
@echo off
cls
::save current path
set oldpath=%path%
::set ANSI.SYS check flag to Yes (default)
set AC=Y
mem /mansi > ac.tmp
find /c /i "ANSI is not" ac.tmp > nul
::if ANSI.SYS is not loaded, set flag to No
if not errorlevel 1 set AC=N
echo.
if (%AC%)==(Y) echo Running ←[42;1m HEADER.BAT ←[40;0m. . . .
if (%AC%)==(N) echo Running HEADER.BAT. . . .
echo.
if (%1)==(/?) goto help
if (%1)==() goto e_msg4
::capitalize %1 using path as uppercase translator
path=%1
set FILE=%PATH%
if not exist %1 goto e_msg3
::if %2 exists, and if it isn't "/f" or "/F" then error msg
if not (%2)==() if not (%2)==(/f) if not (%2)==(/F) goto e_msg2
if not (%3)==() goto e_msg1
if (%AC%)==(Y) echo Preparing to print ←[1m%FILE%←[0m. . . .
if (%AC%)==(N) echo Preparing to print [%FILE%]. . . .
echo.
::if ANSI.SYS is loaded, the following two lines are echoed to the monitor
if not (%AC%)==(Y) goto no_ansi
echo •        ←[41;37;1m Paper loaded?    ←[0;40;37m
echo          ←[41;37;1m Printer on-line? ←[0;40;37m
goto save_to_environment
:no_ansi
::if ANSI.SYS not loaded, the following two lines are echoed to monitor
echo •
echo  Paper loaded?
echo  Printer on-line?
echo
:save_to_environment
echo.
::save day & date to environment
echo @echo off > current.bat
echo set day=%%3>> current.bat
echo set date=%%4>> current.bat
echo @echo off >savedate.bat
echo.|date>>savedate.bat
```

continued

mand to translate lowercase characters to uppercase. Next, the program looks for the presence of ANSI.SYS and sets the variable AC accordingly. If ANSI.SYS is loaded, HEADER.BAT uses it to configure the display and its colors. Otherwise, the program will display plain text and no graphics.

Next, HEADER.BAT gives you a message telling you it's running. To get the escape character (←) found here and elsewhere, press Ctrl+P followed by the Esc key in DOS's Edit program. To get the bell character (•), press Ctrl+P, Ctrl+G in Edit.

The routine to capitalize lowercase words is simple. Header has already saved the original path and assigns the %1 parameter to PATH with the line PATH=%1. Next, it assigns %PATH% to the environment variable FILE, freeing PATH for future assignments.

This procedure uses a fair chunk of the computer's environment. If you find your environment falling short, indicated by an "Out of environment space" message, you can increase your environment by editing the SHELL statement to your CONFIG.SYS file:

```
SHELL=PATH\COMMAND.COM /P /E:512
```

Increase the environment space (512 in the above example) by increments of 16 until you have enough. You'll have to reset your computer each time for your modified CONFIG.SYS to take effect.

If Header determines that parameter %1 exists and isn't the Help switch /?, then Header assumes %1 must be a filename and verifies the file's existence. If the filename doesn't exist in the current directory or a directory supplied at the command line, Header runs the routine :E_MSG3, which displays a "Filename not found" message. The program then runs the routine :EXIT and returns to the DOS prompt.

Notes and Other Useful Information

If the user responds with a "yes" to the "Attach notes to hardcopy?" prompt, then the line COPY + CON > PRN echoes any notes you enter. You finish by pressing the

```
call savedate.bat
::save time to environment
echo @echo off > current.bat
echo set time=%%3>> current.bat
echo @echo off > savetime.bat
echo.|time>> savetime.bat
call savetime.bat
::include path to find CHOICE because path is being used as an u/c translater
c:\dos\choice Attach notes to hardcopy
::send double wide code to printer
echo ================================================================←W1 > prn
::send header info to printer, then release double wide setting
echo %FILE%  %DATE%  %TIME% ←W0 > prn
echo ================================================================ > prn
echo. > prn
if errorlevel 2 goto skip_notes
::copy notes to hardcopy only
echo.
echo Enter notes.  When done, press F6 on new line
echo followed by [Enter]:
echo.
echo ------------------ NOTES ------------------ > prn
echo. > prn
::send notes to printer.
copy prn + con > nul
echo. > prn
echo ------------------ FILE ------------------ > prn
echo. > prn
:skip_notes
echo.
if (%AC%)==(Y) echo Printing ←[1m%FILE%←[0m. . . .
if (%AC%)==(N) echo Printing [%FILE%]. . . .
copy %1 prn > nul
echo.
if (%AC%)==(Y) echo ←[1m%FILE%←[0m copied to PRN with filename, date, time and any notes attached.
if (%AC%)==(N) echo [%FILE%] copied to PRN with filename, date, time and any notes attached.
echo.
::if /F switch used at command line, then FF sent to PRN, else goto FF
if (%2)==() goto FF
if (%2)==(/F) echo FF> prn
if (%2)==(/f) echo  FF> prn
goto exit
:FF
::include path to find CHOICE because path is being used as an u/c translater
c:\dos\choice Send Formfeed to Printer
echo.
if errorlevel 1 if not errorlevel 2 echo FF > prn
goto exit
:e_msg1
::capitalize %3 using path as uppercase translator
path=%3
set SW2=%PATH%
```

F6 function key, which marks the end of the file and returns you to the batch file.

I included both the time and the date in the header to help me determine version numbers of programs I'm writing. Actually, leaving out the time would make HEADER.BAT faster, but it's useful to me during long debugging sessions when I might print many versions of a file in the same day.

```
if (%AC%)==(Y) echo •←[41;37;1m Syntax error: ←[0;40;37m
   Too many parameters ←[1m%SW2%←[0m. . . .
if (%AC%)==(N) echo •Syntax error: Too many parameters [%SW2%]. . . .
goto help
:e_msg2
::capitalize %2 using path as uppercase translator
path=%2
set SW=%PATH%
if (%AC%)==(Y) echo •←[1;41;37;1m Syntax error: ←[0;40;37m Invalid switch ←[1m%SW%←[0m. . . .
if (%AC%)==(N) echo •Syntax error: Invalid switch [%SW%]. . . .
goto help
:e_msg3
if (%AC%)==(Y) echo •←[1;41;37;1m Run time error: ←[0;40;37m
   Filename ←[1m%FILE%←[0m not found. . . .
if (%AC%)==(N) echo •Run time error: Filename [%FILE%] not found. . . .
echo.
goto exit
:e_msg4
if (%AC%)==(Y) echo •←[1;41;37;1m Syntax error: ←[0;40;37m Filename not supplied. . . .
if (%AC%)==(N) echo •Syntax error: Filename not supplied. . . .
:help
echo.
echo
if  (%AC%)==(Y) echo                          ←[1mHEADER.BAT←[0m
if  (%AC%)==(N) echo                          HEADER.BAT
echo
echo    PURPOSE:  Echo Filename, date, time and notes to printed file.
echo
echo     SYNTAX:  HEADER [/?] [d:path\Filename.ext] [/F]
echo
echo   SWITCHES:  /? Help
echo              /F Formfeed
echo
echo.
:exit
::restore original path to environment
set path=%OLDPATH%
::cleanup and exit
for %%v in (DATE DAY TIME AC FILE SW SW2 OLDPATH) do set %%v=
del ac.tmp
if exist savedate.bat del savedate.bat
if exist savetime.bat del savetime.bat
if exist current.bat del current.bat
```

End

Escape Codes

You can use escape codes to produce double-height, double-width, or any other options your printer provides.

HEADER.BAT's header routine contains IBM ProPrinter code tested on an old Olympia NP 136 printer. The accompanying table (below) shows a few of the more common Epson codes.

COMMON EPSON PRINTER CODES

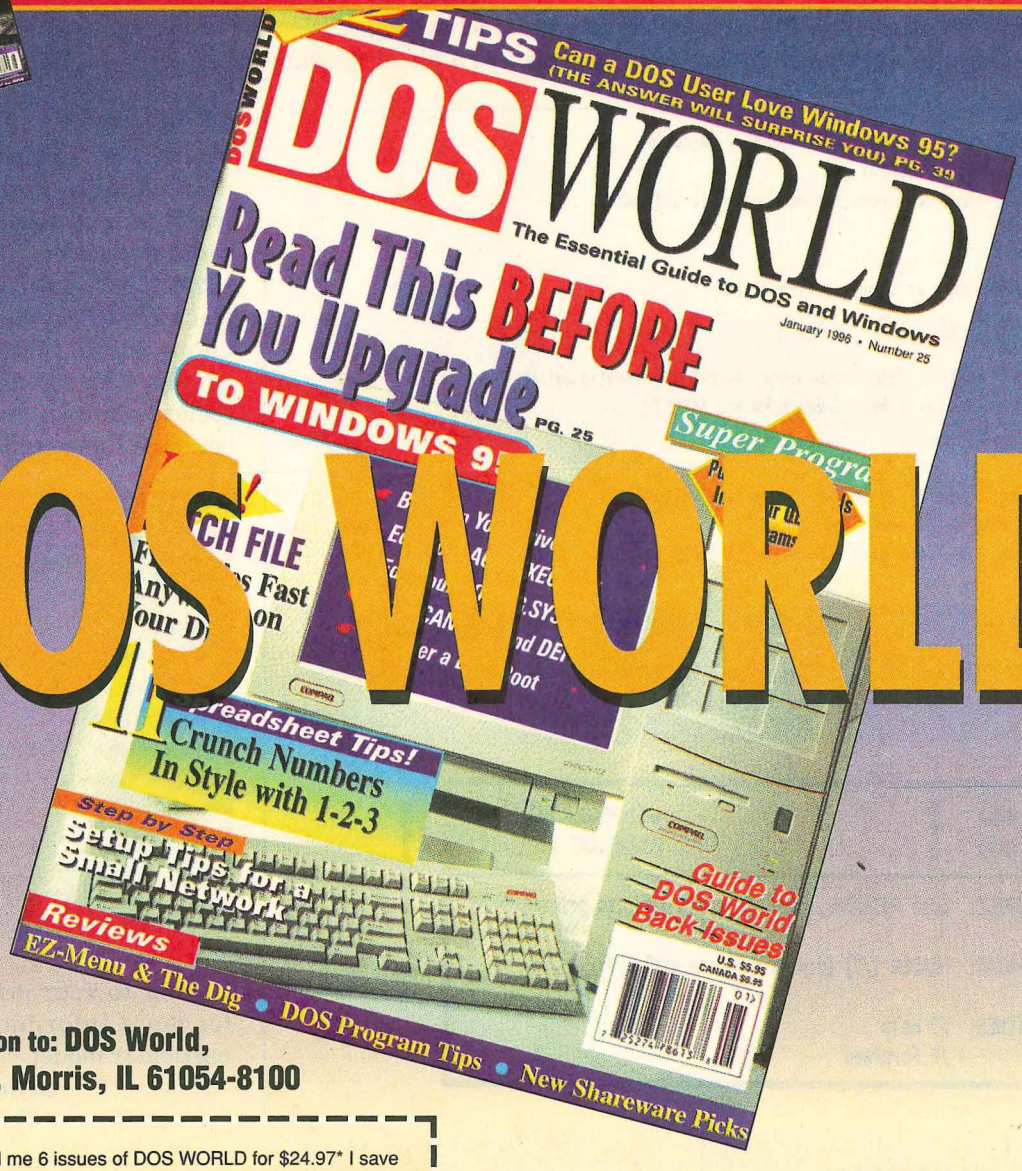
Command	Set	Release
double-strike	EscG	EscH
double-width	EscW1	EscW0
double-height	Escw1	Escw0
emphasized	EscE	EscF
underlining	Esc-1	Esc-0
italic	Esc4	Esc5

Refer to your printer manual for more information on your particular model.

Glynn Richardson
Toronto, Ontario
Canada

Submit batch files on disk to DOS World, 86 Elm Street, Peterborough, NH 03458, or electronically via CompuServe (75300,2357), the Internet (75300.2357@compuserve.com or editors@iway.mv.com), or the DOS World BBS (603-924-3181; 8,N,1).

TAKE THE DREAD OUT OF DOS



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DOS Program Hints & Tips

by Anne Fischer Lent and Stan Miastkowski

Whether you're new to most popular DOS applications or an expert power user, chances are you're not using your software to its fullest. Every application has its tips, tricks, and shortcuts that can simplify your computing life and increase your productivity. But even experts don't always know all the time and effort savers. Here are two dozen tips we've come across that'll make your DOS computing easier and more efficient.

TIP #1 Lotus 1-2-3 for DOS: Working with Words

Spreadsheets are mainly designed for numbers, not words (except, of course, for labels). Lotus 1-2-3's Text Range, however, lets you specify areas of your worksheet where you can enter large blocks of text. Before you can use Text Range, you'll need to make sure you're in 1-2-3's WYSIWYG (what you see is what you get) mode by selecting /Tools/WYSIWYG and then Quit to return to Ready mode. Select /Display/Mode /Graphics/Quit, and then do this:

1. Select /Text/Edit.
2. Specify the range into which you want to enter text. A cursor appears to the left of the first cell.
3. Type the text. Words will wrap as you type.
4. Press Esc to finish and leave the text range.

Note that you'll eventually get a "Text Range Full" message and won't be able to enter any more characters. To add more, select /Text/Edit again and enter a larger text range. To remove a text range, just use the /Text/Clear option.

Anne Fischer Lent and *Stan Miastkowski* have a combined total of nearly 30 years' experience covering personal computers. They've written numerous articles on using computers in the real world and have coauthored two books, the most recent being The Windows for Workgroups Bible *(Addison-Wesley, 1993). You can reach them on the Internet at* ***alent@bix.com*** *and* ***stanm@bix.com****, respectively.*

TIP #2 Lotus 1-2-3 for DOS: Printing While You Work

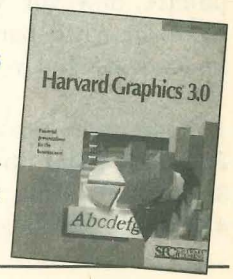
If you use Windows, the built-in Print Spooler feature lets you print in the background while you keep working. But 1-2-3's /Print/Background command can do the same thing.

First, you'll need to run BPrint, a TSR (terminate and stay resident) program that lets 1-2-3 pat its virtual head and rub its virtual belly simultaneously:

1. Use Quit to exit 1-2-3. *Don't* "shell to DOS" by using /Tools/DOS.
2. BPrint is in the directory where you installed 1-2-3 (usually `\123`); at the DOS prompt, change to that directory by typing `CD \123` or the name of the directory where you installed 1-2-3.
3. Type `BPRINT` at the DOS prompt and press Enter.
4. Restart 1-2-3, and you're ready to use the /Print /Background command.

Note that if your PC is on a network, load BPrint *after* your network software. You can print in the background only to a printer connected directly to your PC; this feature won't work with a shared network printer (which usually contains its own "spooling" software).

TIP #3 Harvard Graphics for DOS: Chart Regions



With Harvard Graphics' Draw feature, you can move and size chart regions and add annotations. In

addition, if you want to make changes within regions of a chart, you no longer have to make changes in the data form first. For an easier way, use the following steps to take advantage of the File menu's Save as Symbol option:

1. With the chart open, go to the main menu and pull down the File menu.
2. Choose Save as Symbol from the File menu and give it a name.
3. Choose Create Chart from the main menu.
4. Choose Drawing.
5. Choose the Symbol tool, then Get.
6. Choose your symbol file from the list, and press Enter. To select your symbol, click on its picture. (If this is the first time you've used Save as Symbol, it's probably the only symbol shown.) Press F10—Continue. The chart should now be larger on screen.
7. Click the right mouse button to call up the main icons.
8. Click on the Ungroup tool and right-click to make the handles disappear.
9. Select the element (or elements) you want to modify; then modify them with the Draw tools.
10. Save the symbol by choosing Select Objects from the Actions menu. Choose All, press Enter, and then save by pressing Ctrl+S. Enter a name and press Enter.

TIP #4 Harvard Graphics for DOS: Save Time and Paper

You know how your chart will look on screen, but what about when it's printed? Here's how to get a real-world preview of how the colors on your monitor will translate to your black-and-white printer:

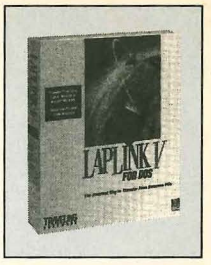
1. With the chart open, select Output from the main menu.
2. Select the appropriate output device.
3. Select F2—Preview to see the chart as it will appear in black-and-white.

TIP #5 Harvard Graphics for DOS: Picking the Right Palette

Harvard Graphics provides you with 32 palettes and also lets you create your own. But when you're outputting to a black-and-white printer, beautiful screen colors aren't important. Choosing the MONOCHRW.PL3 palette, however, will display black-and-gray objects against a white background, giving you a close approximation of what you'll get in print. Here's what to do:

1. From the main menu, choose Setup.
2. Choose Color Palette.
3. Select F6—File, then Get Palette.
4. Choose MONOCHRW.PL3 from the list.

TIP #6 LapLink V for DOS: Déjà Vu Backup



If you tend to use the same programs day after day, you'll discover many instances when you'll want to use LapLink version V for DOS to repeatedly back up the same set of files. For example, you may be in the habit of safeguarding important records by making a daily backup of your updated database files. Here's how, using LapLink's Existing Files Only feature:

1. Choose Copy Options from the Options menu, and then check to make sure that the Existing Files Only item is *off*.
2. Copy the desired set of files (in this case, database files) to a floppy disk.
3. The next time you want to copy the same set of files to a floppy, choose Copy Options from the Options menu and switch Existing Files Only to *on*.
4. On your target (floppy) disk, open the directory containing the backup files.
5. On your source disk, open the directory containing the files in which you've been working.
6. Choose Select All from the Select menu to get every file in the directory.
7. Press F2 to copy, or click on the Copy option with your mouse to select it.

For even greater efficiency, you can save the time required to copy files that haven't changed since your last backup by selecting Newer Files Only from the Copy Options dialog box.

To really speed things up, use LapLink's recorder to save steps 3 through 7, and then play them back whenever you want to make a backup.

TIP #7 LapLink V for DOS: Short and Fast Menus

LapLink V for DOS lets you alternate between long and short menus. While long menus let you access all features, short menus are faster and easier to use because they show only the most commonly used menus and commands.

When you start LapLink for the first time, you'll see long menus with all features. To switch, choose Short Menus from the Options menu; to change back, choose Long Menus.

Note that SmartXchange is available only in long menus, and that the complete on-line help system is available in either menu size.

Also, even with long menus turned off, you can play back recordings that include commands normally available only in long menus.

TIP #8 The Norton Utilities for DOS: Walking the Disk

The Norton Utilities' Speed Disk feature typically lets advanced users determine which files physically occupy any block on a particular disk (for instance, when attempting to fix damaged files in bad clusters). But no matter what your computing expertise, Speed Disk is handy for finding out how your disk is organized:

1. To get information about a specific block, choose Walk Map from the Information menu.
2. Move the cursor to the block on the map you want to look at, and either press or click on Enter.
3. A window will pop up showing the usage of all clusters in the block, and whether they're optimized or fragmented.

TIP #9 The Norton Utilities for DOS: Removing Stubborn Files

For one reason or another, using DEL to erase a file or RD to remove a directory doesn't always work. Sometimes, it's a simple matter of dealing with a read-only attribute for a particular file: If it's on, you can't erase it.

Using The Norton Utilities' File Attribute feature, simply type `FA D:\path\filename /CLEAR`, where D: is the drive, *path* is the directory path, and *filename* is the DOS filename. The /CLEAR switch then removes all DOS attributes, letting you use DEL to delete the file. But the simplest way to delete a stubborn directory and its contents is to use the Change Directory command. At the DOS prompt, type `NCD RMTREE D:path`. Don't forget that this command deletes all subdirectories and all files in those directories.

If neither method works, the file or directory is corrupt or invalid. Bring on Norton Disk Editor:

1. Start Disk Editor and then choose Drive from the Object menu.
2. Select the drive with the stubborn file or directory, then OK.
3. Choose Directory from the Object menu; choose the file or directory you want to delete; then select OK.
4. Using the left- and right-arrow keys, place the cursor under the first character of the filename or the directory name.
5. Press Alt+F5. This will replace the first character with the DOS sigma character. (DOS uses it to mark files or directories as erased.)
6. Choose Write Changes from the Edit menu, and then Write to make the change.
7. To get out of Disk Editor, choose Exit from the Object menu.
8. When you're done, run Norton Disk Doctor (NDD) to clear the lost cluster left behind.

If some of the above menu items are grayed out, you may need to change your configuration. To do so in Disk Editor, select Tools/Configuration, and then uncheck Read Only.

TIP #10 Paradox for DOS: Speed Up Those Queries

Most database users end up performing the same queries on a database over and over again—such as compiling a weekly table of past-due accounts from an accounts-receivable database. Paradox's QuerySpeed option can move those repetitive searches along faster by creating secondary indexes.

After you've created a query, choose QuerySpeed from the Tools menu; Paradox will take over and make all the decisions. If a secondary index will speed up the query, Paradox builds it automatically, using the fields it deems necessary. In some cases, secondary indexes won't speed up a query, and you'll get a "No speedup possible" message.

TIP #11 Paradox for DOS: Start-Up Automation

Every time you start Paradox, it looks for a script named INIT in the current DOS directory. Although an INIT script isn't required, if you have one, it will play automatically—like a DOS AUTOEXEC.BAT file. Use the INIT script to automatically perform operations you routinely take care of when you start Paradox. For example, you might change your working directory, open one or more tables, and display a list or report.

The easiest way to record an INIT script is to use Paradox's Instant Script option. Press Alt+F3 to start recording, enter all your keystrokes, and then press Alt+F3 again to stop recording. After you record the script, select /Tools/Rename/Script to rename it INIT. Make sure you store the script in the directory from which you start Paradox.

TIP #12 Quattro Pro for DOS: Make It Pretty

Once you've entered all numbers and labels in your Quattro Pro worksheet, you'll want to tweak the "look and feel" to make it easier to read, especially if you'll be distributing the final result to those proverbial steely-eyed bean counters. Although Quattro Pro offers many features for adding pizzazz to your work, the simplest and most effective are lines and boxes. Select /Style/Line Drawing, specify the block to contain lines, and then choose any one of the following commands:

- **All** puts a box around the block and draws vertical and horizontal lines to produce a grid.

- **Outside** draws a box around the borders of the designated block.
- **Top** draws a horizontal line at the top of the first row of the block.
- **Bottom** draws a horizontal line below the last row.
- **Left** draws a vertical line along the left border.
- **Right** draws a vertical line along the right border.
- **Inside** draws vertical and horizontal lines between all pairs of adjacent cells.
- **Horizontal** draws a line between adjacent rows.
- **Vertical** draws a line between adjacent columns.

You'll then see a menu of line types; choose Single or Double for the corresponding effect. At this point, you can either select Quit or go back and choose additional line commands.

TIP #13 Quattro Pro for DOS: Multiple Graphs

When you store your Quattro Pro worksheet, only the last graph you created is automatically stored with it. To store more than one graph with your worksheet, follow these steps:

1. Choose /Graph/Name/Create. The software prompts you for a name for your graph, and you'll see a list of other graph names (if any) already associated with the worksheet.
2. Enter a graph name (up to 15 characters) and press Enter. Be careful: If you enter an existing name, the new graph will overwrite the old one.

Use the Display command to retrieve a graph you've saved previously. You can also use stored graphs with other worksheets.

TIP #14 Quicken for DOS: Make a Date

There are several ways to enter dates in a Quicken document, but an especially handy technique is to use the Calendar feature as follows:

1. With the cursor in the Date field, choose the Calendar command from the Shortcut menu.
2. With the Calendar screen showing, highlight the date you want and press F9. Voilà—the date will be entered in your selected Date field.

TIP #15 Quicken for DOS: When Qcards Get in the Way

Quicken's little pop-up messages are called Qcards, and although they're helpful, they can also cover up part of your screen. If you want to get rid of them altogether, or maybe shrink them down so that you can get some work done, try these shortcuts:

- To get rid of them, press Ctrl+F9. To get them back, press Ctrl+F9 again.
- To shrink them, press Ctrl+F8. To bring them back to full size, press Ctrl+F8 once more.

TIP #16 Quicken for DOS: Multiple-Use Files

One of Quicken's best features is that it's designed to work with more than one set of records (for example, tracking home as well as business finances). Here's how to set up Quicken to work with two or more files:

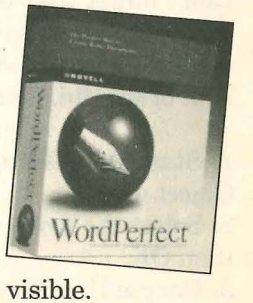
1. Go to the main menu and choose File Activities.
2. Choose the Select/Set Up File command.
3. Select the Set Up New File option, name the file, and follow the prompts.

TIP #17 Quicken for DOS: Moving Beyond Alt Combos

For keyboard diehards, Alt-key combinations get old fast. A simpler way to pull down a Quicken menu is to press its various embedded function keys. Keep this guide handy for your next task:

- F2 = Print/Acct
- F3 = Edit
- F4 = Shortcut
- F5 = Reports
- F6 = Activities
- F7 = Graph

TIP #18 WordPerfect for DOS: Seeing All



When you need to work with more than one WordPerfect document at the same time, you can view them all by cascading them: one document overlapping another (or several others), with each title bar visible. Just select Cascade from the Window menu to "frame" each document, so that you can move or resize it easily.

TIP #19 WordPerfect for DOS: Creating Bookmarks

WordPerfect's bookmark capability lets you mark locations in your text so that you can get to them easily. To add a bookmark:

1. Place the cursor where you want the bookmark.
2. Select /Edit/Bookmark... from the menu to call up the Bookmark dialog box.

3. Select the Create command in the dialog box.
4. Choose the name WordPerfect assigns to the bookmark, or create your own.
5. To place the bookmark, press OK or Enter.

Once your bookmark is in place, you can get to it by selecting /Edit/Bookmark from the menu, selecting the name of the Bookmark, and then choosing Find.

TIP #20 WordPerfect for DOS: Make Room for White Space

Whether you want to indent text or add white space for looks, it may seem natural to just press the spacebar a few times. Doing so, however, can produce disappointing results. In most cases, the best way to add white space is to use the Tab key, and the best way to indent text paragraphs in a WordPerfect document is to set up the indents within the format of your document. Here's how:

1. Select /Layout/Margins from the menu.
2. In Paragraph Margins, use Left or Right Margin Adjustments to indent whole paragraphs, or use the First Line Indent option to indent only the first lines of your paragraphs.

TIP #21 WordPerfect for DOS: Quick Deletions

Just as there are many ways to make mistakes, so there are many ways to undo them. In WordPerfect 6.0, the following list of handy shortcuts will save you loads of keystrokes:

- **Del** deletes the character to the right of the cursor.
- **Backspace** deletes the character to the left of the cursor.
- **Ctrl+backspace** deletes a word.
- **Ctrl+left arrow** or **Ctrl+backspace** deletes the previous word.
- **Ctrl+right arrow** or **Ctrl+backspace** deletes the next word.
- **Ctrl+End** deletes the remainder of a line.
- **Ctrl+PgDn** deletes the remainder of a page.

TIP #22 XTree Gold for DOS: Print Those Directories

XTree Gold makes it a breeze to print lists of files contained in a directory (for example, if you want a printed list of files on a particular floppy disk). Here's what to do:

1. With the Directory window active, choose Print from the Volume pull-down menu.
2. Choose from the following submenu items:

- **Catalog of tagged files.** Prints the name and statistics of all files you've tagged in every directory of the current volume.
- **Pathnames.** Prints a list of pathnames with the total number of logged files and total number of bytes for those files on the current volume.
- **Tree.** Prints the directory tree structure as you see it in the Directory window.

TIP #23 XTree Gold for DOS: Hex Editing

If you're an advanced computer user, you've undoubtedly needed at one time or another to physically change the data in a program or file. XTree Gold includes a handy hexadecimal editor that lets you do that. Once you've chosen the file you want to edit, select View from the file commands at the bottom of the screen. Choose Hex, and then Edit.

This option lets you change hex locations in typeover mode. Now just move the cursor to the character you want to change, and type the replacement character over it. Use the Tab key to toggle between hex and ASCII displays. Press Enter to save and exit; press F8 to erase your changes and revert to the original file.

Warning: Hex editing isn't for the timid. Changes to program files can cause unexpected problems; make sure you know what you're doing, and make a backup of the file before you edit it.

TIP #24 XTree Gold for DOS: Find That File

How many times have you remembered something you've stored in a data file, but not the name of the file or where it's stored? XTree Gold lets you search for text in a file in any specified directory. Just follow these steps:

1. If the words DIR COMMANDS aren't displayed at the bottom left of your XTree screen, press Esc.
2. Point to the directory you want to search; hit Enter.
3. Press Ctrl+T, or select All in Window, to mark all files in the directory.
4. Press Ctrl+S, or select Search from the Tagged pull-down menu.
5. Type the text you want to find, and press Enter.
6. Press Ctrl+V, or select View from the Tagged pull-down menu, to view the first file (if any) containing the text you want.
7. Select Search Again if you want to continue looking in the same directory; otherwise, press Esc to exit.
8. Press Ctrl+U, or select the All in Window option, to "untag" all files. ■

SHAREWARE EXCHANGE

Familiarity Breeds Contentment

by Hardin Brothers

Some users are dedicated to programs from one publisher because they know what to expect. For example, most Microsoft, Novell (WordPerfect), or Symantec programs will react similarly because they've probably been developed by the same team of designers and programmers. The same can happen with shareware. As I was working with the first nomination for "Shareware Exchange" this month, I noticed that the same author was offering several additional programs. Two of his other programs were so useful that he has become this issue's featured shareware author.

Success has a way of following the shareware author who knows how to do it right.

The programs discussed here are available from the *DOS World* bulletin-board system (603-924-3181), as well as from most information services and local BBSes. (See the sidebar, "Share the Wealth," opposite, and the "*DOS World* BBS" section of "How to Use This Magazine," page 64, for details on accessing the bulletin board. Registration fees are listed in the "Product Information" box, page 24.)

Belly Up to the Toolbar

A neat freeware program called ***DosBar 1.42*** *adds a toolbar to the DOS window under Microsoft Windows. It works great!*

Paulo A. Shakarian
Cleveland, Ohio

Like millions of other users, I prefer some DOS applications and utilities to their Windows counterparts. For example, I'm writing this in a DOS word processor running under Windows because I don't need special fonts, formatting, and other special Windows "enhancements" and because the word processor's menus and command keys are second nature to my fingers.

On the other hand, I like working in Windows—especially the convenience of changing from one running program to another, using the Windows Clipboard, and having several things happening at once. But I don't like Windows' interface for DOS sessions running in a window. For example, to copy text to the Windows Clipboard requires pulling down the Control menu, selecting Edit/ Mark, moving the mouse to select text, and then returning to the Control menu or pressing Enter to move text to the Clipboard.

DosBar makes all that easier. It adds a toolbar to every DOS window, with your choice of icons: to mark, copy, paste, and change fonts; to switch to full-screen operation; and to configure DosBar itself. You can select from five sizes of icons, have DosBar add a description of the icon to which you're pointing, and even choose whether DosBar will keep or delete carriage returns from text you're copying and pasting.

The whole thing is slick, easy, and, in my experience, stable. It's also small. DOSBAR.EXE is only about 15K bytes in size; its DLL helper file is just 40K. Microsoft seems to like the idea, too; they've added a similar but less-flexible toolbar to DOS windows in Win95.

More Where That Came From

The author of DosBar has written ten other Windows utilities. Two of them really caught my attention.

The first, **FTaskMan 1.24**, is a replacement for Windows' Task Manager. If you aren't familiar with Task Manager, you're not alone. You can start it by

double-clicking on any empty space on the Windows desktop, or pressing Ctrl+Esc whenever you're working in Windows. Microsoft's Task Manager is so anemic that few of us give it a thought.

You install FTaskman by changing or adding one line to your SYSTEM.INI file, and then rebooting. From that point on, FTaskMan appears instead of Microsoft's version. FTaskMan shows all currently running programs (even invisible ones, if you want) and lets you perform all sorts of tricks with them. It can neaten the icons on the desktop or arrange open windows in a variety of ways; it lets you switch to a specific window and minimize all others in one operation, kill (or close) selected tasks, and run a new program. You can select the way it displays running tasks and set a wide variety of program options.

The other Windows utility I've come to appreciate is called **MouseKey 1.30**. With this nifty program, you can assign key combinations, menu commands, and various kinds of mouse clicks to any mouse-button or keyboard-and-mouse-click combo. It includes support for three-button mice as well as the more conventional two-button models.

Even better, MouseKey can change its operation according to your application and the particular part of that application's window. For example, Shift+right-click can mean one thing within your word processor, something else on the title bar, and a third thing outside the word processor's window. Defining new actions is simple, and, once again, the entire program is easy to use and understand.

All three programs from Andreas Furrer are freeware, and are better than many commercial utilities I've seen. I think all three, along with Furrer's other utilities, deserve your attention if you use Windows 3.1 or 3.11.

A Copy/Format Sensation

The program of the month (and maybe the year) is ***CopyQM 3.22****, a utility that can copy standard floppy disks as well as Microsoft program disks and, presumably, other programs you can't back up. It's also much faster than the standard DOS* COPY *and* XCOPY *commands, and can transparently format a disk as it copies to it. I consider CopyQM my best shareware bargain since LIST and PKZIP.*

Frederick J. Walker
Middletown, New Jersey

CopyQM seems to outshine other floppy-disk copy programs I've written about here. For many users, its most important feature is its ability to copy Microsoft's DMF and WinImage distribution disks.

These two high-density disk formats cram more than 1.44MB onto a single disk. Microsoft may believe that distributing programs on these disks saves money and also deters piracy to some extent, but many users insist on having a copy of any program before they begin installation, just in case something goes wrong with the originals.

CopyQM can also copy other disks that are normally uncopyable on a PC, including Macintosh high-density and PC formats. But it's not just a program for making backups of unusual disks. If you copy floppies often, CopyQM can save you time and headaches. For example, you can use it to copy from one disk format to another (from 1.2 to 1.44MB, for example), to automatically copy a whole set of floppies, to format the target disk only when necessary, to compare the copy with the original data, and to make an image of a disk on your hard disk (for later copying to one or more floppies), with or without compression. And those are only a few of its options.

Unfortunately, CopyQM is a command-line utility, which means that you'd normally have to memorize a wide range of command-line parameters to get the most from it. If you aren't good at remembering all those items, a companion program called **CQMenu** lets you set all the options you want and send them automatically to CopyQM. That may not be a perfect

SHARE THE WEALTH

Our "Shareware Exchange" column invites you to send a copy of your favorite shareware program, along with a description and an explanation of why you like it (no more than 500 words) to Shareware Editor, *DOS World*, 86 Elm Street, Peterborough, NH 03458. Tell us how we can obtain a copy of the program. We'll select a pick of the month for each issue and pay the contributor $50. Other contributors will receive a $10 finder's fee. Please don't send us shareware you've written yourself—we prefer recommendations from users, not authors.

Contact us on CompuServe at **75300,2357**; on the Internet at **75300.2357@compuserve.com** or **editors@iway.mv.com**; or on the *DOS World* BBS at **603-924-3181**. All programs featured in "Shareware Exchange" are available by modem from the *DOS World* BBS (instructions on page 64). DosBar (DOSBR142.ZIP), FTaskman (FTASK124.ZIP), and MouseKey (MOUSKY13.ZIP) are in File Area 7; CopyQM (COPYQM-.ZIP) and All in 1 (ALL14E.ZIP) are in File Area 5. In addition, most of the programs described in "Shareware Exchange" can be found on major on-line services and local BBSes.

—Eds.

solution (a decent built-in user interface with optional command-line parameters would be better), but it's certainly more efficient than searching through CopyQM's mediocre documentation.

As sophisticated as CopyQM is, its big brother, a commercial program called **CopyQM Plus**, can do a lot more. The commercial program is really intended for software distributors who need to add serial numbers to disks, make dozens or hundreds of copies of program disks, and clean and test their floppy drives frequently while they make copies. For most of us, CopyQM has more than enough power to perform all necessary copying chores, and to do so a lot faster than DOS or most other copying programs.

One Key Does It All

***All in 1** is a very useful file manager and viewer. You can copy, move, delete, and rename files just by selecting one of the function keys. Most importantly, you can associate a file with a specific program and run the program from All in 1.*

L. Braden Pletzer
Weston, Ontario, Canada

I've written about file managers and DOS shells several times, and although I find few of them exciting, lots of readers apparently disagree. And All in 1 is one of the most interesting I've seen in a while.

All in 1 displays the files in the current directory much like any other file manager. You can move around your hard disks by selecting directory names, or pop up a directory tree and use it to move to a new directory. You can also use function keys to change disks or directories, to copy or move files, and to perform other standard housekeeping tasks.

All that is pretty standard stuff. It's handy, and it's nice to be able to change from filenames to names plus size and date, and to be able to change the sort order of files simply by pressing function keys. And the directory tree is also nice, but similar to ones you've probably seen in a half-dozen other programs.

What I particularly like about All in 1 isn't the interface, but its ability to associate files with applications. To make the associations, you have to run a program called ALLSETUP. The first step is to define a default file viewer for use with any program that doesn't have an association. A simple viewer called TV.COM is included with All in 1, or you can use DOS's Edit or any other program you want.

Next, you see a screen with a table defining files by their extensions, the application to run, and the options to define in order to run the program. For example, you might use CSHOW to view GIF files. If so, enter GIF in the first column as the file type, the full path to CSHOW in the second column, and any necessary options for CSHOW in the third column. You can also tell All in 1 to prompt you for additional options, such as destination directories.

Once you make all the associations you want, you'll have given All in 1 a great deal of power. Use it to select a ZIP file, for example, and it can automatically run PKUnzip to decompress the file into a directory of your choice. Or use it to select a sound file, and you'll instantly hear the results on your speakers. Of course, associating files with applications isn't new. Windows' File Manager lets you do it, and so do several other DOS shells. What I appreciate about All in 1 is that the process is clear and easy.

That doesn't mean, however, that I think that All in 1 is perfect. What I dislike most is its file-deletion feature. Put the cursor on a filename, press Del, and the file is gone. That's fine, except that when you press Insert, All in 1 creates a new subdirectory. What if you mean to press Insert but your finger slips and hits Del instead? You guessed it. But that's what "unerase" utilities are for, isn't it?

If you have a full-featured DOS file manager you like, you'll probably want to stay with it. But if you're still shopping for one that fits your work style, All in 1 is certainly a contender. It isn't as powerful or as complex as many competing products. But only you can decide whether that's a defect or its strongest selling point. ■

Technical Editor Hardin Brothers has been working with computers and writing about them for 15 years. He's DOS World's *"Reader Forum" columnist and "Batch-File Medic" author, and also serves as a contributing editor, feature writer, and columnist for* Maximize Windows *magazine.*

PRODUCT INFORMATION

DosBar 1.42
FTaskMan 1.24
MouseKey 1.30
Andreas Furrer
s_furrer@ira.uka.de
freeware

CopyQM 3.22, $25 plus $2.50 shipping
Sydex, Inc.
P.O. Box 5700
Eugene, OR 97405
800-437-9339

All in 1 1.4, $19 plus $5 shipping
Young J. Kwon
805 Ravens Circle #103
Altamonte Springs, FL 32714

Kick into a Gigabyte Drive

For a trouble-free installation, know the lay of the land before you even think about putting that setup disk into your CD-ROM or floppy drive.

by Michael A. Banks

In 1982, I aspired to owning a 10MB hard drive, but would have settled for a 5MB model. Problem was, 5 and 10MB hard drives cost hundreds of dollars, and they were nearly matched in price by their controller cards. I got by with floppies until I bought my first 286 PC with a built-in hard drive.

Today, although hard drives are standard equipment with new PCs, the story is basically the same as it was more than a dozen years ago: If you use a computer regularly, you never seem to have enough hard-drive space. Indeed, it's safe to say that hard-drive space is even more sought-after in the '90s than RAM.

If you're a do-it-yourself user with visions of multimedia and the Internet, upgrading your PC's hard drive will probably mean buying and installing a 1-gigabyte hard drive, either as a replacement or as part of a two-drive unit. Gigabyte drives are in demand to keep pace with the new breed of graphics-oriented and multimedia applications, as well as Internet access, because the majority of recent PCs are equipped with slower 528MB or smaller hard drives.

Maxtor's 7000 series IDE hard drives offer a 1.6GB storage capacity.

I recently installed a 1.2GB hard drive, replacing a 540MB drive. (Note that 1GB is a measure of convenience, as is the case with "1 kilobyte." Virtually all "1GB" hard drives are a little larger than that. Hard-drive structure makes it eas-

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ier to create a 1.2 or 1.3GB drive than a drive with exactly 1GB of space.) As a result of this and many previous installations, I've learned more than I thought I ever wanted to know about hard-disk drives and their requirements. But the most important thing I've learned is that there's never too much to know when it comes to installing a drive.

To install a gigabyte drive in your PC, you don't need to know everything about hard drives, but you should understand the basics of hard-drive configuration and your system's CMOS (complementary metal-oxide semiconductor) setup. To that end, I'll provide information in both of those areas as we take a look at familiar and unique factors of installing a gigabyte hard drive.

Getting Ready

There are six major tasks involved in installing a hard-disk drive, and your new gigabyte drive presents no exceptions:

1. Backing up your data.
2. Preparing your system for the new drive.
3. Preparing and installing the new drive.
4. Setting up the new drive.
5. Testing the new drive.
6. Transferring stored or backup data and reinstalling programs.

As with most tasks involving PC upgrades, there's more to the job than the outline above implies. We'll get into each task in turn, but let's take care of some other matters before we discuss installation.

First, I'll assume that you've done your research and have purchased a gigabyte drive that fits your budget, is compatible with your controller type (IDE, MFM, SCSI), is a size that fits your available drive bay (3.5 or 5.25 inches), and so forth. But before you rip into your computer system—in fact, before you do anything—*read the installation instructions*. Also, read all flyers, bulletins, or pamphlets from the disk drive's manufacturer. Educating yourself now will serve you well if you get into trouble or hit a point of confusion during installation.

Next, take a look at the hard-drive parameters in your system's CMOS setup—the place where all the basic information about your hardware is stored. Your PC's BIOS (basic input/output system) looks at this data every time your computer boots up and uses it as a part of its basic operating structure. I can't tell you exactly how to get into your CMOS setup, because the procedure varies from system to system. To find out the procedure for your PC, look for access instructions appearing on your monitor within seconds of turning on your system. Typically, your system will prompt you to press F1, F2, Delete, or some other key or key combination before DOS begins loading.

When you get into your CMOS setup, use the menus provided to take a look at your hard-drive parameters. Then *print them or write them down*. You may need them later, should you need to restore your original hard drive. Parameters include the hard-drive "type," the number of heads and cylinders, and other operating information that your BIOS and DOS need to "recognize" and access the drive. With that information recorded, it's time to back up your data.

Make an Insurance Copy

On occasion, I've backed up a hard drive's contents by copying the data to another computer's hard

DOS Tip

Putting NUL to the Test

Some batch files require that you determine whether a command-line parameter represents an existing directory. To accomplish this, batch programmers frequently use a command such as this one:

```
IF EXIST %1\NUL command
```

This technique works because the NUL device exists in every directory. You should be aware, however, that this method works only in a subset of cases. It misses all valid directories whose names contain a trailing backslash, which means that it won't spot directory names such as C:\ or C:\DOS\.

To surmount this problem, I use two alternative methods for testing for a directory name. Use this line if you want to execute the command when the directory name is valid:

```
FOR %%D IN (\NUL NUL) DO IF EXIST %1%%D command
```

Use this technique if you want to execute the command only when the directory name given is invalid:

```
FOR %%D IN (\NUL NUL) DO IF EXIST %1%%D SET OK=!
IF NOT "%OK%"=="!" command
```

Note that this alternative method requires an "if the directory exists" test to work properly. To illustrate why, imagine that an action is taken whenever the directory doesn't exist. If the first tested condition (appending \NUL to the end of the directory name) fails, the action is carried out—even if the second tested condition (appending NUL to the end of the directory name) would have proven that the directory was valid.

—Darren Natale

drive via a serial-port hookup. That way, the data resides safely on computer B's hard drive while I install the new drive on computer A, after which I transfer the data back to the new drive via the serial-port link.

If you don't have a second computer with enough spare drive space to do that, you have two choices: copying important files to floppies or copying everything directly from the old hard drive to the gigabyte drive.

Even if you're going to copy your old disk's contents directly to the new disk, you should still copy important data to floppies as a backup. It's not the chore it may seem—you don't have to copy everything. The only files you must back up are your important data files and your program-configuration files. Use your original program disks and your system-backup disks to reinstall your other programs.

To simplify the process, use PKWare's **PKZIP** for DOS ($47 plus $5 shipping; 414-354-8699) or Nico Mak's **WinZip** for Windows ($29; call 800-242-4775 to order from the Public Software Library) to archive your configuration and data files. Create archives of the files you're backing up on a directory-by-directory basis, and make sure the names of the archive files are the same as those of directories they back up.

You'll also need a "map" of your system's directories and subdirectories: a file listing to which you can refer when reconstructing the directory structure of your old disk on the new gigabyte drive. You can use any of a number of DOS utilities for this, or perhaps Windows File Manager.

Or you can create text files containing the names of the files and subdirectories in every directory on your drive with the DOS command DIR>FILENAME.EXT. This command creates an ASCII text file you can edit, read, or print. Create a file for each directory; then merge the files into one and print the results for a quick-and-easy reference to your hard-disk drive's collection of directories and files.

For a more literal "map," use DOS's TREE command and store the results in a file, like this:

```
TREE/F>FILENAME.EXT
```

The resulting file will contain a graphics map of each directory in which you type the command, along with all subdirectories within the current directory and the files they contain. The enhanced version

TROUBLESHOOTING TIPS

- What if your new gigabyte drive operates just fine, but for some reason, your CD-ROM drive doesn't? Don't panic. While some BIOSes automatically reorder the drive chain and reassign your CD-ROM as another drive down the line (probably E: rather than D:), some don't. If that happens, simply reinstall the CD-ROM's driver and other software; that should change the CMOS setup appropriately.

- What if you've followed all this advice and the instructions provided by the hard-disk manufacturer, but your system doesn't boot up? Turn it off, and follow these steps to check out your physical setup:

1. Are the jumpers in place as recommended by the new drive's manual?
2. Are the power and control cables properly connected and secure? Unplug and reconnect them to make sure.
3. Did you configure your system's setup to match the parameters you wanted and the new drive's configuration requirements?

Don't hesitate to check *all* these elements. None of us is immune to making mistakes, and it's usually one small, simple error—such as a missing jumper—that fouls up a complex system.

- If these remedies don't work, or you get stuck along the way, call the hard-drive manufacturer's customer-service number. If you're on line, check to see whether the manufacturer has a Web site or a forum on one of the commercial on-line services.

- Here's a list of on-line connections for the five largest hard-drive manufacturers: places it wouldn't hurt to visit *before* you install your hard drive. You may find updated information on your drive's jumper settings and other parameters, plus additional help with the installation process. Some manufacturers include entire installation manuals, complete with diagrams:

CONNER	**http://www.conner.com**
MAXTOR	**http://www.maxtor.com**
QUANTUM	**http://www.quantum.com**
SEAGATE	**http://www.seagate.com** or on CompuServe **GO SEAGATE**
WESTERN DIGITAL	**http://www.wdc.com** or on AOL keyword **Western Digital**

- In addition, you'll find useful files and discussions on these and other manufacturers' storage products in forums on these on-line services:

America Online	keyword **PC HARDWARE**
CompuServe	**GO PCHARD**

—M.B.

of Buerg Software's **LIST** (Buerg Software, 139 White Oak Circle, Petaluma, CA 94952; $20) also creates directory trees. You can check out the latest version of LIST in CompuServe's computer directory; use the PC File Finder or access the PC Utilities Forum. (Type `GO PCUTIL`.) Or find `LIST91C.ZIP` in File Area 5 of the *DOS World BBS* (dialing instructions on page 64).

Once again, make sure you back up your data and configuration files even if you intend to keep your old drive and install the gigabyte drive as either a master (boot, or main) drive, or a slave drive (the secondary drive).

If you plan to install the new drive as a solo drive, you can still copy the files from your old drive to the new one. Simply install the new drive as the temporary master drive of a slave/master combination, following the instructions provided with the drive. (Do this only *after* backing up your important data on floppies, as just described.) Then copy everything over from the old drive (now in its slave persona), using one of the techniques I'll describe later.

Preparing for Surgery

Now it's time to get physical. Make sure you have the necessary tools: a pair of needle-nose pliers, medium-sized Phillips and regular (slotted) screwdrivers, and a flashlight or bright desk lamp. Tweezers may come in handy for moving jumpers. (You may also want to get out a vacuum cleaner with a brush attachment; odds are your system has a bit of dust and hair inside, and it won't hurt to clean it out—carefully.)

Have your computer's manuals handy, too. Most include information and diagrams that will show you how to disassemble the cover and then get at the necessary system components inside. Then shut down your system, unplug the power supply, and remove the cover.

Now . . . stop! With the cover off, take time to learn what you're getting into. Identify the hard drive's parts: the drive itself, installation hardware, cabling, and so forth. Then read carefully through the manual and accompanying literature; as you read about the drive and installation procedure, look over your system and identify various components (drive bays, hard-disk controller and cable, and so on) mentioned in the documentation.

When you're confident you know what's what and where it's all located, touch your computer's metal case to "ground" yourself and discharge any potentially damaging static electricity you may be carrying. Now carefully unplug the cables going into the hard drive. Most likely, there will be two: a *power cable* with three or four wires and a ribbon-like *controller cable* with a 40-pin female connector on each end. (You needn't disconnect the cable from the controller or motherboard at this time.)

Next, remove the drive bay or drive-and-bay assembly, according to the diagram in your system manual. You'll probably find it convenient to rest it above and away from the computer cabinet. A thick magazine or newspaper laid across the top of the computer can provide support.

Getting a Jump on Installation

Before installing your gigabyte drive, you'll have to configure its jumpers—tiny slide-on connectors linking two or more pins among a row of a dozen or more paired pins. These pins are normally on the end of the drive opposite the power supply.

The particular pins on which you'll place jumpers will vary according to whether you're using one or two drives, which drive of the two is the master and which is the slave, and whether, in a two-drive setup, the drives are from different manufacturers.

The new drive's user manual should include information on how to configure jumpers for each situation. If you need additional information on topics not covered, contact the manufacturer.

After looking over the drive-bay situation, remove the old hard drive if you plan to replace it entirely. Carefully set aside the screws and any mounting hardware. Or, if you're keeping the old drive in the

DOS Tip: Record a Batch File with DOSKEY

Ever wish you could "record" a batch file from the keyboard rather than typing it in? You can—with a little help from DOSKEY. Load DOSKEY into your AUTOEXEC.BAT file and restart your system. Then follow these steps:

1. Press Alt+F7 to clear the DOSKEY command stack, the area where DOSKEY stores commands so that they're available for recall.
2. Type in and execute the commands you want in the batch file.
3. When you finish, press F7 to review the commands stored in the command stack. If they're okay, save them to a file by typing:

   `DOSKEY /HISTORY > batname.BAT`

   where *batname* is the name of the batch file you want to create. The greater-than (>) redirection symbol writes all commands in the command stack to the file instead of to the screen.
4. You can then edit the batch file to make changes or add commands. For example, you might want to add @ECHO OFF to the beginning of the file.

—Ken Johnson

system, locate the empty bay where you'll install the gigabyte drive. You can leave the old drive in place, unless you need to move it to get at its jumpers.

Mount the gigabyte drive in the appropriate bay. If necessary, use mounting hardware supplied by the manufacturer, or use the hardware from the old drive. Use only enough screws to hold the new drive in place; you may have to remove it before you're finished.

Next, plug in the power supply and the ribbon cable. If you're installing your gigabyte drive as a replacement, you can use the same power cable that went to the old drive. If you're setting your system up with two hard drives—the existing one and the gigabyte version—you'll find a second power cable that looks the same as the first; either cable can go to either drive. The power cable will insert in only one way. Don't worry about getting it backwards—but don't force it, either.

For solo-drive setups, use the same ribbon cable as you did with your old drive. For two drives, substitute a "daisychain" cable, with three 40-pin connectors: one at each end and one in the middle. (It should be included with your new drive.) It doesn't matter which connector you use for the board/drive controller; what's important is that you align the connectors properly. That's no problem with certain connectors that have an alignment block in the center.

But some cables' connectors have no alignment block, so you'll have to align them by keeping a colored strip (usually red) running along one side of the cable aligned with pin 1 on the 40-pin plug, on the motherboard and the drive's board. Pin 1 is designated by a tiny numeral 1 on the plug block or a numeral 1 on the circuit board next to the plug.

Now everything's in place. Double-check your cable connections; then place a system disk (a bootable disk, probably your System Disk 1 or something similar) in your computer's drive A. Plug in the power supply, and turn on your PC. Your system will boot up and will probably ask you to enter the date and time. Press Enter at those prompts.

Setting Up CMOS

The first thing you need to do is set up your system's CMOS to recognize the new drive. Following the steps mentioned earlier, press the appropriate key or key combination when your system is booting to get to the CMOS setup. (Note that floppy-disk-based systems that include no hard drive require that you run a program called SETUP or INSTALL from the system disk.)

The installation manual that came with your new gigabyte drive should list the "drive type" and a set of parameters to use in setting it up. Your CMOS setup may offer an Auto Sense or similar mode, but I don't recommend it.

Instead, select the appropriate drive type as indicated in the manual (a number between 1 and 45). Or, more likely with a gigabyte drive, select the User Configuration option. (With some BIOSes, that's drive type 46, 47, 48, or 49.) With this option, you enter the appropriate number of heads, cylinders, and sectors—again, as the manual indicates.

If the BIOS doesn't let you enter "user-defined" drive parameters, you'll have to use the hard-disk management program that comes with your new drive. This program may be provided under any of several names, but it has the same purpose no matter what it's called: It can recognize a drive's type and configuration and put it into the CMOS setup for you.

With that done, exit the CMOS setup and save the new settings. Now reboot your computer from the floppy drive.

Partitioning the Gig

Depending on your applications and your system's BIOS, you may want to "partition" your gigabyte unit into more than one drive. That is, if you have a single 1GB drive, you might allocate 600MB as drive C and the remaining space as drive D. You can do that with the built-in DOS utility FDISK (Fixed Disk). (See "Divide and Conquer," page 31 in this issue, for more on hard-drive partitioning.)

How and why you use FDISK depends in large part on the specific drive you're installing, whether it's a boot or nonboot drive, and how you intend to partition it.

For example, if you're setting up the new drive as the master for a two-drive system, you'll want your system to recognize the new drive. Regardless, because FDISK incorporates many variables, make sure you consult your drive's installation manual and your DOS manual *before* using this handy utility. If you want to make sure before proceeding, contact your new drive manufacturer's customer-service center.

Depending on your system's BIOS, you may *have* to partition your new gigabyte drive. MS-DOS is generally limited to "seeing" no more than 528MB on a hard drive. Newer BIOSes solve this problem, but you have to make sure your BIOS can recognize drives larger than 528MB. For instance, if you install a gigabyte drive with an older BIOS that doesn't recognize more than 528MB, odd things can happen—including overwriting data and losing it forever.

You and Your BIOS

In general, a BIOS with a copyright date of 1994 or later can handle hard drives larger than 528MB. (The copyright and name of the BIOS appear on your screen when you turn on your system.)

For example, Phoenix BIOSes with a 1994 or 1995 copyright date recognize 1GB drives, but if yours is different, check with your hard drive's or PC's manufacturer.

A quick way to tell whether your BIOS can recognize drives larger

than 528MB is to go into the CMOS setup and check for an option labeled LBA or Logical Block Addressing, under hard-drive parameters. If those option are present, your BIOS may let DOS work with larger drives. If your BIOS can't recognize drives larger than 528MB, though, you'll have to use the hard-disk management program mentioned earlier, which lets DOS recognize drives as large as 2GB.

High-Level Formatting

Your new drive has already been low-level formatted, but now you'll have to do a high-level format and add system files.

To do the high-level format, boot your system with a DOS disk in the gigabyte drive. If the new drive is the master or boot drive, type `FORMAT C:/S` to transfer all the DOS system files to the new drive—the final step in preparing it for use. I like to add the Verify parameter, which lets me know when files are copied correctly to disk, making the command `FORMAT C:/S/V`.

If the drive is a slave drive, or if you've partitioned it, type the command `FORMAT` without the `/S` parameter but with `/V` (Verify) if you prefer: `FORMAT D:` or `FORMAT D:/V`.

After formatting the new drive, shut down your system and perform the first test: attempting to boot it.

This Is a Test

When it comes to PCs and data, I like to check out the drive extensively before I commit all my data to it. After installing and setting up a new drive, I leave the system disassembled and start the drive. I watch the monitor to see whether there are any unusual messages or failures.

After booting it three or four times, I log on and off all system drives (C, D, and so on) and get a directory for each drive. Then I try several DOS disk commands:COPY, MD, DELETE, CD, RD, and CHKDSK.

Next, I copy everything in the \DOS directory to the new drive. If I'm working with a new drive as a solo or a master drive, the first items I copy are AUTOEXEC.BAT, CONFIG.SYS, and all the files to which those two refer. I then try MEM and MSD (Microsoft Diagnostics). Finally, I use system utilities that test read, write, and seek capabilities.

Once I feel confident that everything's in order, I copy a small variety of programs and data files to the new disk. DOS telecommunications and word-processing programs go on first. I put them right to work, along with utility software such as PKZIP/PKUnzip. I install more programs as I need them.

With the exception of the boot test, all the abovementioned tests also apply to a new slave drive. After I'm satisfied that the drive's in good shape—usually after a full day of using the "test programs" I've loaded—I copy over everything.

Replacing Programs and Data

You can get most of your programs and their directories on the gigabyte drive by simply installing them from their master or backup disks. Be sure to replace the new programs' configuration files with those you copied from your old drive.

Referring to your "disk map," create the rest of the directories that existed on the old drive, and then copy your data. If you're copying data from floppies, remember that creating PKZIP archives of each directory will save a lot of time. All you have to do is unzip each "directory" from the floppy into its new home.

If you've kept your old drive or retained it temporarily to copy everything over, you'll want to find a utility that can copy directories for you. If you use Windows, File Manager will do the trick. In DOS, type the command `XCOPY /F` to copy all directories and files as they exist on your old hard drive.

Several shareware utilities, such as LIST, will copy or move directories for you. Whether you use DOS or Windows, it's far easier to transfer your files one directory at a time—but don't neglect your floppy backups.

How you handle the transfers is up to you. Before I installed the gigabyte hard drive on the system I'm using to write this article, I copied all data from the 540MB drive it was replacing—just to play it safe. I installed the new drive as the master and the 540MB drive as the slave. After testing the new drive, I used Windows' File Manager, running on the old drive, to transfer all my files.

Note that if you've set up a second drive but had only one before, programs that search for data and other sorts of files often look to drive C. You may need to tell some of the programs that they're now working on drive D, because your old configuration files will refer to drive C.

I've since installed the 540MB drive in an old 386 machine that's getting a Cyrix 386/486 upgrade chip. Now all I have to do is erase a bunch of floppies and find a home for the 250MB drive I removed from the 386. Any takers? ■

DOS Tip

Losing Menu Colors

If you use the MENUCOLOR command in a CONFIG.SYS file offering multiple setup options, and the colors are reset to the DOS defaults (gray on black), one of the menu blocks loads the ANSI.SYS device driver. When ANSI.SYS loads, it takes control of screen output and can't detect the previous color scheme.

—Ken Johnson

HARD-DRIVE PARTITIONING

Divide and Conquer

Hard drives, like mammoth projects, are often more manageable if you break them down into smaller components. Here's how to get more storage room, speedier backups, and better data protection.

by Tony Roberts

What would you give to have a faster backup routine, stronger protection for your files, or more space on your hard disk? I've managed to get all three—without shelling out money for new software. The key to my success is a tool that has been around in MS-DOS since the days of version 3.2 (and in PC DOS since 2.0): the FDISK command. A so-called *partitioning program*, this oldie-but-goodie lets you set up a single bootable compartment on your hard disk or divide your hard disk into multiple compartments, one of which is bootable. Each partition looks and behaves like a separate hard disk.

At present, my hard disk contains three partitions: C:, D:, and E:. I load most of my software on drive C; drive D holds my data files; and drive E is reserved for telecommunications programs and downloaded files. I developed this scheme primarily to streamline my backup regimen. Even with a tape drive, I take no joy in backing up data stored all over my hard disk. Confining data files to drive D lets me perform quick, incremental backups. And because backing up is less of a chore, I'm more inclined to do it regularly.

My partitioning strategy also makes it easier to watch for viruses. I conduct my risky business—telecommunications, shareware evaluation, and the like—on drive E. Because most new files enter my system through that drive, it's the most likely place for a computer virus to take root. I scan my entire system for viruses occasionally, but drive E gets more frequent attention.

To get more hard-disk space, I didn't do anything special. When you subdivide a hard disk, DOS reduces the size of the units it uses for storing files, and, on average, your files waste less space. (For an explanation of this phenomenon, see the sidebar "Free Lunch," page 32.) Admittedly, you don't gain a great deal of space this way, but every bit helps.

Faster backups, stronger defense against viruses, more real estate—is there a catch? I cannot tell a lie: FDISK isn't a program to be trifled with. In setting up new partitions, it wipes out your old one and, consequently, all the data it contains. The best time to consider your partitioning options is when you're installing a new hard disk. But you can repartition your hard disk successfully if you take things one step at a time. (If you'd willingly pay extra to be able to repartition without destroying existing data, see the sidebar "Like Magic," page 33.)

The Lay of the Land

Before you take the plunge, scope out the territory. If you have DOS 6.0 or later, use the command FDISK /STATUS to reconnoiter; it displays a report on the partition status of each drive on your system. (See the first screen shot, "Check it out," page 32, top left.) Because this command doesn't let you alter your partitions, you don't risk losing any data when you use it.

Another way to see what's going on with your partitions is to run FDISK and select option 4, Display Partition Information. (See the second screen shot, "FDISK options," page 32, right.) If your disk con-

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```
                Fixed Disk Drive Status
Disk    Drv     Mbytes  Free    Usage
1               203     0       100%
        C:      122
        D:      49
        E:      32


  (1 Mbyte = 1048576 bytes)
C:\
```

Check it out. If you have DOS 6.0 or later, you can see a partitioning report for the drives on your system by typing FDISK /STATUS at the DOS prompt.

tains more than one partition, as the one in the third screen shot does ("A drive divided," opposite), FDISK shows you how space is allotted. The report on my hard disk, for example, shows that the disk is divided into two basic segments: a primary DOS partition (PRI DOS) and an extended DOS partition (EXT DOS). The primary DOS partition is also tagged as having A status, indicating the active partition and thus the one that boots when you turn on your system.

You'll notice that the third screen shot doesn't show the drive letters assigned to the extended DOS partition. To see that information, you need to look more deeply into your disk's partition structure: Type Y in response to the prompt asking whether you want to display logical-drive information. (See the fourth screen shot, "Completely logical," page 34.)

Now you have the whole picture. Taken together, these three reports tell you that this 203MB disk is partitioned into a 122MB partition designated as drive C (the active partition), a 49MB partition designated as drive D, and a 32MB partition designated as drive E.

But there's one thing more you need to know. What neither these reports nor DOS's brief help entry on FDISK tells you is that FDISK can't always handle a hard disk larger than 528MB. That's because DOS and the BIOS in many systems have no way to communicate about big hard drives. If that's the case with your system, FDISK will work only with the portion of the disk your BIOS recognizes.

To eliminate this problem, many newer PCs now include BIOSes with large-block addressing (LBA) technology, which lets a big drive exist as a single partition. If you have a large hard disk and an older BIOS, however, you're not out of luck. Most drive manufacturers include disk-management software, such as Micro House International's EZ-Drive or On Track's Disk Manager, with their products. These programs work their magic by performing on-the-fly translation, eliminating the communications problem between DOS and the BIOS and opening up that bottleneck.

If a program of this sort is managing your hard disk, you can't use

```
                    FDISK Options

Current fixed disk drive: 1

Choose one of the following:

1. Create DOS partition or Logical DOS Drive
2. Set active partition
3. Delete partition or Logical DOS Drive
4. Display partition information


Enter choice: [1]
```

FDISK options. When you type FDISK at the DOS prompt, DOS presents a menu containing several choices. If you have more than one hard drive, FDISK displays a fifth option: Change Current Fixed Disk Drive.

FREE LUNCH

Because of the way DOS stores files, there's always a certain percentage of empty space on a disk, even if the disk appears to be full. This slack space develops because DOS stores data in file-allocation units called *clusters*. It doesn't let one file use another file's partially occupied cluster. Floppy disks, for example, use a cluster size of 1024 bytes—the minimum amount of space DOS can assign to a file stored on a floppy. Even if the file contains only 1 byte of data, DOS forces it to take up 1024 bytes, or one cluster, of disk real estate.

To understand how partitioning and smaller cluster size mean less wasted disk space, imagine copying a 1-byte file to your hard disk. Hard disks use cluster sizes of 2048 (2K) to 65,536 (64K) bytes; the larger an unpartitioned hard disk, the bigger its cluster size. My 400MB hard disk, for instance, uses a cluster size of 8192 bytes. If I store that 1-byte file on my hard drive, it consumes 8192 bytes of space.

Of course, not all files are tiny, 1-byte units, but, even so, almost all files contain unused space. If I store a 40,000-byte document on my 400MB disk, it occupies five clusters: four full clusters of 8192 bytes and a fifth cluster that includes 7232 bytes of data and 930 bytes of slack space.

If you have a copy of Symantec's Norton Utilities on your system, try running its File Size module. This program shows you how much space your files occupy and includes a readout on the amount of unused space. In a test on my disk, the program found roughly 148MB of data occupying 164MB of disk space. That means the disk contains 16MB of "unoccupied" space I can't use. That's not enough wasted space to entice me to repartition this hard disk. But if I decided to partition it for other reasons, I'd draw comfort from knowing that I'd get a bit more disk space in the bargain.

—T.R.

FDISK to do partitioning; your special hard-disk manager handles that chore.

That software may not be as flexible as DOS's FDISK, but it won't be as difficult to use. With EZ-Drive, for example, you don't have to navigate several menus and figure out which options to select. Once you give it the okay to work on your drive, it jumps in and takes care of everything. But although it lets you partition your disk, it doesn't let you set the size of your partitions. If you request three partitions, you get three partitions of equal size, and that's that.

Prepare to Meet Thy Partitioner

If, after scouting out FDISK, you're still resolved to repartition your hard disk, the next step is preparing a safety kit. It should include three important items:

- A floppy disk containing a copy of the backup software you need to restore your data.
- A full backup of your data. Don't skimp; be sure to verify that you can recover data from the backup you make. You'll regret it later if you don't make a backup and then discover that you can't get your files back. If you use DOS 6.x's backup program and want to back up a hard disk or an entire partition, here's the command:

```
BACKUP drive:\*.* floppy drive: /S
```

- A start-up disk created with your current DOS version. When you type FORMAT /S, DOS formats the disk and makes it bootable by transferring IO.SYS, MSDOS.SYS, and COMMAND.COM. In addition, you should also copy FDISK.EXE, FORMAT.COM, CHKDSK.EXE, SCANDISK.EXE, and any other files you might need, including AUTOEXEC.BAT and CONFIG.SYS. (Remember that after you repartition your hard disk, you no longer have access to these or any other files. Your start-up disk must contain everything you need to get going again.)

```
                Display Partition Information

Current fixed disk drive 1:

Partition  Status  Type    Volume Label Mbytes  System  Usage
C: 1         A     PRI DOS    MISC_C      122  FAT16     60%
   2               EXT DOS                 81            40%

Total disk space is  203 Mbytes (1 Mbyte = 1048576 bytes)

The Extended DOS Partition contains Logical DOS Drives.
Do you want to display the logical drive information (Y/N).....?[ ]

Press ESC to return to FDISK Options
```

A drive divided. Choosing the Display Partition Information option reveals further details about your disk partitions.

With your newly created backup disks on hand, there's one final detail to iron out before partitioning can begin in earnest: Use the VOL command on each of your disk's drives and jot down their labels:

```
VOL drive
```

FDISK may ask you to supply a label name before it's willing to delete a partition.

Proceed Apace

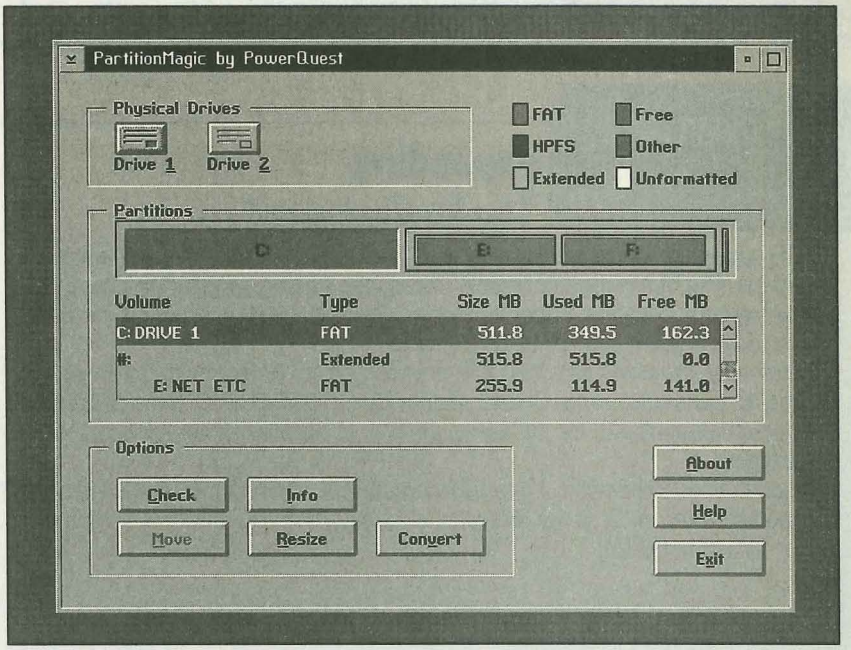
To repartition your disk, you begin at the deepest level of your struc-

LIKE MAGIC

If you have your heart set on repartitioning but don't have the stamina to use FDISK without assistance, look into PowerQuest Corp.'s **PartitionMagic for DOS and Windows** (800-379-2566, 801-226-8977; $49.95). This mouse-driven program eliminates the need to back up your data and start over from scratch whenever you want to change the size of a partition or create a new one.

To expand or shrink a partition, for example, you drag its border to a new location. To add a new partition, you shrink an existing one, run FDISK, and then format the new partition. PartitionMagic works to ensure the safety of your data by checking the integrity of your files before, during, and after repartitioning. Unlike FDISK, PartitionMagic gives you a complete rundown on your partitions in a single display, as the accompanying screen shot shows.

—Eds.

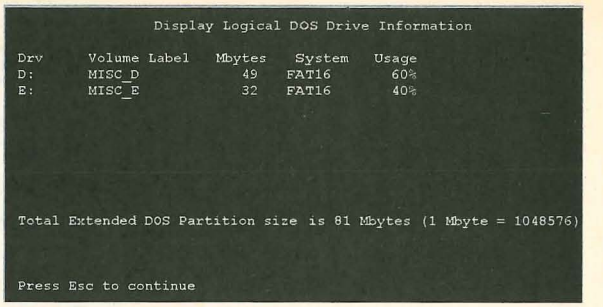


Partition Magic offers easy, mouse-driven controls to simplify a daunting hard-disk chore.

ture. For example, if your hard disk contains an extended partition and that partition includes two or more logical drives, you must delete the logical drives first, then the extended partition. Finally, you delete the primary DOS partition.

If you have several extended DOS partitions, follow these steps:

1. Type FDISK and choose option 3, Delete Partition or Logical DOS Drive. (See the fifth screen shot, "Deleting partitions," opposite, top.) If you run Windows 3.1, quit the program before using FDISK.
2. In the next screen, choose option 3 again. FDISK warns you about the dangers of deleting a logical drive and asks you to type the letter of the drive you want to delete.
3. If FDISK prompts you, supply the drive's label and confirm your intention to delete the partition.
4. Repeat the previous two steps for any other logical drives in your extended DOS partition.



Completely logical. If your extended DOS partition contains more than one partition, you may view information on those partitions by typing Y in response to the prompt in the Display Partition Information screen.

Return to FDISK's Options screen by pressing the Esc key. With the logical drives gone, you're ready to eliminate the extended DOS partition. Choose option 3. In the new screen, choose option 2. FDISK displays partition information and asks whether you want to delete the extended DOS partition. Press Y and then Enter.

You delete the primary DOS partition in a similar fashion: Return to the Options screen by pressing Esc; choose option 3; then select option 1.

To wipe out the partition, press the Enter key. Supply a label and confirm that you want to delete the partition.

Restoration Project

Now it's time to rebuild. To create your primary DOS partition, return to the Options screen. FDISK assumes that you want to set up a primary DOS partition; press Enter to confirm that. (See the sixth screen shot, "From the ground up," opposite.)

Because you intend to create more than one partition, answer N to the subsequent "Do you wish to use the maximum size . . ." prompt. After that, FDISK asks you to specify how much of the disk it should allocate to that partition. You may provide either a percentage or the number of megabytes; if you use a percentage, place a percent sign after the figure.

Press Esc to return to the Options screen; then select the second menu choice, Create Extended DOS Partition. DOS lets you create only a single extended DOS partition, so even if you plan to add two or three

Windows 3.1 Tip: Expanding The Environment

DOS applications or batch files that run fine from the DOS command line may produce "Out of environment space" messages when run under Windows. That happens because, under Windows, a secondary environment is created when a DOS application or batch file runs.

Normally, Windows sets the DOS environment for programs to the value set in the /E: parameter of the SHELL statement in CONFIG.SYS. If the SHELL statement doesn't provide this value, the size of the environment defaults to 256 bytes.

Fortunately, Windows 3.1 lets you increase the secondary environment size by adding a line such as the following to the [NONWINDOWSAPP] section of your SYSTEM.INI file:

```
COMMANDENVSIZE=512
```

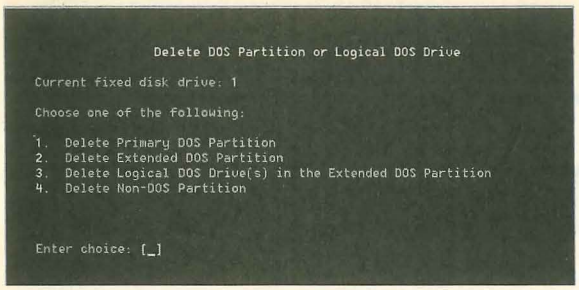
The number following the equal sign shows the desired size of the environment. This value may range from 160 to 32768; invalid values are rounded up to 160 or down to 32768. If you specify a value less than the current size of the environment, the setting is ignored.

If you use a PIF (program-information file) to run a batch file, you can set the size of the environment in that PIF. The value you choose overrides any value set in SYSTEM.INI's COMMANDENVSIZE= line. The accompanying table, "Sample PIF Settings," shows typical values.

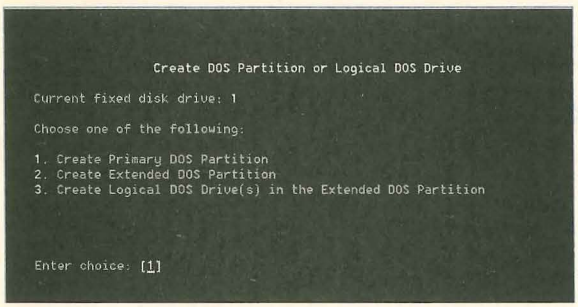
—Ken Johnson

SAMPLE PIF SETTINGS

Field	Setting
Program Name	COMMAND.COM
Program Title	My Program
Optional Parameters	/E:1024 /C C:\MYDIR\MYPROG.BAT
Start-Up Directory	C:\MYDIR



Deleting partitions. If you have an extended partition containing two or more logical drives, you must delete them before you reorganize your hard disk.



From the ground up. To begin the process of restoring your hard drive, you must tell FDISK to set up a primary DOS partition from the Options screen. Later, you'll also create an extended DOS partition and logical drives.

more drive designators, allocate the remaining disk space to the extended partition.

Get yourself back to the options menu and choose 3: Create Logical DOS Drives in the Extended DOS Partition. Follow the prompts to allocate the space in your extended DOS partition. The key is to make sure your partitions are large enough to store the kinds of files you create.

For example, if you edit huge graphics that span megabytes, don't hem yourself in by creating too small a partition to hold the number of files on which you typically work.

After setting up your partitions, select Set Active Partition from the Options screen and make your primary DOS partition active. If you fail to do this, your system won't boot from drive C.

At this point, exit FDISK and restart your computer, booting from your floppy disk. Issue FORMAT commands for each of the partitions you've set up. Use FORMAT C: /S on your primary DOS partition to make it a bootable drive. For the other partitions, you don't have to use the /S switch.

When formatting is complete, restore your backups and begin reorganizing your system. Although you can use DOS's repertoire of commands—MKDIR, CHDIR, COPY, XCOPY, and so on—for reorganizing your files, a graphical file manager (such as Central Point's XTree Gold, Windows 3.1's File Manager, or Windows 95's Explorer) simplifies that task. These programs let you move files and subdirectories *en masse*, from one partition to another. Because they display your file structure graphically, you'll be able to see where you are and will make fewer mistakes.

Final Details

When everything's in place, you'll need to evaluate whether CONFIG.SYS and AUTOEXEC.BAT need tweaking. One change you'll undoubtedly have to make is editing your AUTOEXEC.BAT's PATH statement to reflect your new file structure.

You should also take a look at your batch files and, if you use Windows, edit the properties of your Program Manager icons to reflect the new locations of your applications.

I always prefer to mold my computer system to the way I work rather than adjusting the way I work to my computer system. Partitioning my hard drives is just another way to do that. ■

DOS Tip

Deep Directories

When I reorganize my hard disk, I often need to create a series of nested subdirectories. For instance, I might decide to store all my TXT files in a subdirectory called C:\EDIT\FILES\TXT. Normally, if all three subdirectories don't exist, I have to create them by typing several MD commands. To remove one more headache from hard-disk cleanup, I wrote a batch file called MMD.BAT that can create several subdirectories in one step:

```
@ECHO OFF
IF "%1"=="" GOTO SYNTAX
CTTY NUL
ECHO D | XCOPY %COMSPEC% %1\NUL
CTTY CON
GOTO END
:SYNTAX
ECHO Syntax: MMD path
ECHO where path is the string
ECHO of subdirectories that you
ECHO want to create.
:END
```

To use MMD.BAT to create the \EDIT, \FILES, and \TXT subdirectories mentioned above, type this command at the DOS prompt:

```
MMD C:\EDIT\FILES\TXT
```

When you use MMD.BAT, bear in mind that DOS limits the length of a pathname to 64 characters. That figure includes the drive letter and colon, but not the filename.

—Frets Olivares

ON LINE TO THE INTERNET

Make the Connection With DOS

Using text-based DOS to explore the graphics-based Internet is not only possible, but can be faster than going on line with Windows.

by John E. Simpson

Not surprisingly, nearly all the publicity surrounding the Internet focuses on snazzy GUI (graphical user interface) screen shots associated with Windows and ignores text-based DOS software completely. The implication is clear: "Why would anyone want to use DOS to explore the Internet?" Truth is, however, a boost from a great DOS shareware program means that you don't have to stay off the I-way just because you don't use Windows.

First, consider two practical reasons to choose DOS over Windows or a Unix-based application for going on line to the Internet:

1. You may have no other choice. If you're still using a 286 machine, those glittering but CPU- and RAM-hungry graphical interfaces are beyond your PC's reach anyway.

2. Speed. Unless you've got a Pentium machine, oodles of RAM, and a video card that's a small computer in its own right, character-based DOS displays are always snappier than graphics.

There's a third advantage, as well: stability. That means freedom from inexplicable software crashes. That's not always true when you actually surf the Internet; we'll take a look at the reasons why in a moment. For now, let's see how you can use DOS to fully enjoy the graphics-oriented world of the Net.

Getting There from Here: Service Providers

No matter how you plan to connect to the Internet—with DOS or with some other operating system—your initial concern is how to access it. Your first order of business is to get the fastest modem you can afford (preferably 28.8kbps). Otherwise, downloading large text and graphics files will be time-consuming and cost you more in the long run.

Next, to make your PC a full-fledged player on the Internet, you've got to make it "look like" any other Internet computer with respect to the way it transfers data. That means using communications software with either SLIP (*serial-line interface protocol*) or PPP (*point-to-point protocol*) capabilities: software that can process data the same way the Internet does. Of the two protocols, PPP is more recent, more stable, more efficient, and "more standard"; that's the one I'll address here.

Because the Internet isn't a single computer but rather thousands of them, you can't simply install the PPP software and "dial into the Internet" as you would with a general-purpose communications package (like Telix) and a BBS. Instead, you dial into an *Internet service provider* (ISP).

An ISP provides you with a gateway to the Net, usually for a subscription fee of about $25 to $50 a month. The ISP routes all network traffic addressed to your PC, whether in the form of files you're downloading, e-mail, or messages from the network or the Internet computer you're accessing.

Look for an ISP in your local phone book under "Internet Service

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Providers" or "Internet Access Providers." If you're already on line with a commercial information service or a BBS, chances are you can find lists of ISPs sorted by country, state or province, city, or area code.

You might also check with your local public library, computer store, or user group; computer magazines covering the Internet (such as *I+way*) are also good sources.

In addition, remember that many commercial software packages of the "Internet in a box" variety come with subscription offers for Internet services.

Once you've contacted an ISP and arranged for your PPP account, you'll need to add two other components to your DOS/Internet toolkit: a PPP dialer program, plus programs (called "clients") to do the actual surfing on the PPP waves. Here's where DOS users must swallow a bitter pill: The majority of PPP software available or under development is targeted at graphical environments such as Windows and the Macintosh. (Such environments can make use of areas of memory invisible to DOS.)

The DOS software I used in researching this article is a freeware package called **EtherPPP**, jointly developed by the University of Michigan and Merit Network, Inc. As with much freeware, it's offered "as is." If it doesn't work, you can ask for help with it; otherwise, you're on your own. (To get a copy, contact Merit Network Inc., 4251 Plymouth Road, Suite C, Ann Arbor, MI 48105-2785; 313-764-9430; e-mail **info@merit.edu**.)

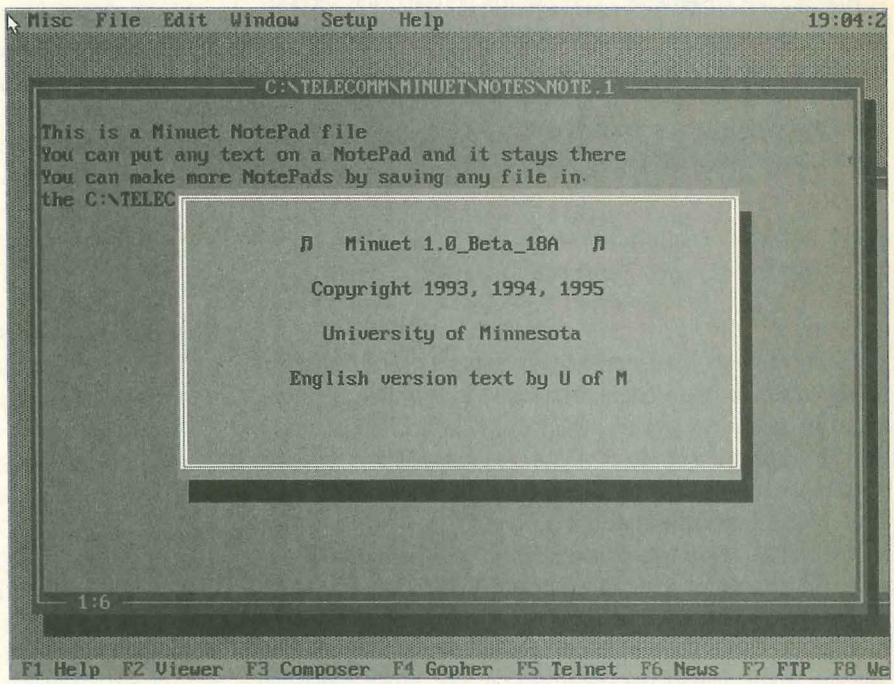
Once you've got a copy of EtherPPP, unzip it into its own directory and take a look at the READ.ME documentation file. Although it's written for an earlier version of the software, it will give you an idea of what to expect. (See the sidebar "Setting Up EtherPPP," page 38.)

Viewing the Connection

To actually *do* anything with your new PPP connection, you'll also need client software: applications that present the Internet's information to you in ways you can actually use. You may have already encountered some of the following terms while reading about the Net:

- **E-mail software.** Lets you exchange messages and sometimes files with other Internet users.
- **Telnet.** Gives you a "login" to certain Internet computers offering features not available via one of the other clients, such as access to a specialized database or an on-line game.
- **FTP (file-transfer protocol).** Lets you browse the directory contents of the thousands of Internet computers and transfer files from and to them.
- **Gophers.** "Burrow" through the Internet, searching for files with characteristics of interest to you.
- **Newsreaders.** Retrieve messages currently posted on Usenet newsgroups (an Internet counterpart comprising tens of thousands of public bulletin boards, each on a unique subject) and post messages from you.
- **Web browsers.** Give you access to the burgeoning World Wide Web (a.k.a. WWW, or just "the Web"), including graphics and "hypertext links" that let you jump from one document to another with a click of your mouse. (Note that Web browsers also include, at a minimum, FTP and Gopher capabilities.)

You could acquire these clients from separate sources; you may find better software that way. (It's the same principle that says you shouldn't get your car stereo factory-installed; go to someone who builds stereos instead of cars.) For simplicity's sake, however, I'll cover an all-in-one DOS shareware solution known as **Minuet**.



Minuet's opening screen shows a series of overlapping panels, with function-key commands arrayed along the bottom.

Like other Internet programs, including EtherPPP, Minuet was developed by a university: the University of Minnesota, in this case. (You can get a shareware copy of the next-to-latest Minuet version—1.0 beta 18, as of this writing—directly from Distributed Computing Services, attn: Minuet Shareware, 190 Shepherd Labs, University of Minnesota, Minneapolis MN 55455. Cost is $50.)

Install Minuet in its own directory. It's a self-extracting archive called MINUARC.EXE; type MINUARC at the DOS prompt. Check the documentation files, all of which carry the extension TXT. With EtherPPP and Minuet installed, you're ready to surf the Net, DOS-style.

Let's Do It

First, start EtherPPP from its directory. Set up a batch file and dial-up script as explained in "Setting Up EtherPPP"; then just type the name of the BAT file at the DOS prompt and press Enter. EtherPPP dials the ISP; you enter your login ID and password. Then EtherPPP provides you with a very important piece of information: your Internet protocol (IP) address, a string of numbers separated by periods. In one recent session, for example, mine was 199.44.6.191. The

SETTING UP ETHERPPP

You'll need a couple of supporting files to run EtherPPP, both of which are included as "templates" within the ETHERPPP.ZIP file. You can modify either one with DOS's Edit program. The first file, CONFIG.PPP, looks like this:

```
ppp trace 0
ppp pap user <username> <password>
ppp pap timeout 20
ppp quick
ppp lcp open
```

In general, you need to pay attention only to the first two lines. The "trace" option determines the degree of connection detail EtherPPP will display. Zero, the default, displays minimal information; 255 displays everything.

Replace the <username> <password> portion of the second line with your own user name (obtained from your ISP) and, optionally, your password.

The second file, DIAL.PPP (you can call it whatever you want), tells EtherPPP how to contact your ISP. Here's what my so-called "script" file (JESDIAL.PPP) looks like:

```
send "ath0\r"
recv 6000 "0K\r\n"
send "atdt222-6727\r"
recv 60000 "login: "
```

As you can see, the script basically consists of alternating text strings to send to the modem and receive from it: ath0\r means "send the modem command ath0, followed by a carriage return (\r)." This command simply initializes the modem. If that succeeds, the modem responds by displaying OK, followed by a carriage return and a new-line character.

The number 6000 tells EtherPPP how long (in thousandths of a second) to wait for confirmation. (Here, that's 6 seconds.) After receiving the OK confirmation, EtherPPP sends the command atdt222-6727 (and the ubiquitous carriage return) to the modem. This command actually dials my ISP's number. When substituting your own ISP's phone number, check whether your phone line uses pulse (rotary) or tone (push-button) dialing. Then use dp or dt, respectively.

Finally, you're telling EtherPPP to wait 60,000 milliseconds, or 60 seconds, for the string login: (including a space). Note that it will ignore any other messages sprayed onto my screen until it gets the one it's waiting for. Then control returns to me, so that I can type in my password. (The software enters my user name automatically, based on information in the CONFIG.PPP file, as described above.)

I've found that the best way to run EtherPPP is with a simple batch file, like this:

```
set DIAL.PPP=c:\telecomm\Etherppp\JESDIAL.PPP
ppp /d script /v 1 /s 115200
```

The first line sets a DOS environment variable, which points EtherPPP to the script file (JESDIAL.PPP in my case). The directory in which the script is located, as well as the name of the file itself, can be anything that's appropriate for your own PC.

The second line starts EtherPPP. I'm using three command-line switches:

- **/d script** instructs EtherPPP to look in the script file (designated by the DIAL.PPP variable) for the commands it needs to contact my ISP
- **/v 1** turns EtherPPP's "verbose" mode on, displaying dozens of messages about the status of the connection as it proceeds. These messages may be more or less useful in diagnosis and debugging; you can eliminate the /v 1 switch entirely.
- **/s 115200** tells EtherPPP what speed (baud rate) to use when dialing. 115200 is optimistic, as my modem is nominally capable of only 28,800 (although with compression, it's possible to reach the 115,200 rate). In fact, when I use this value to dial my ISP, EtherPPP tells me that such a high speed can only be approximated and so sets the actual rate to 49,664. For your own /s value, use whatever's appropriate for your own modem.

—J.E.S.

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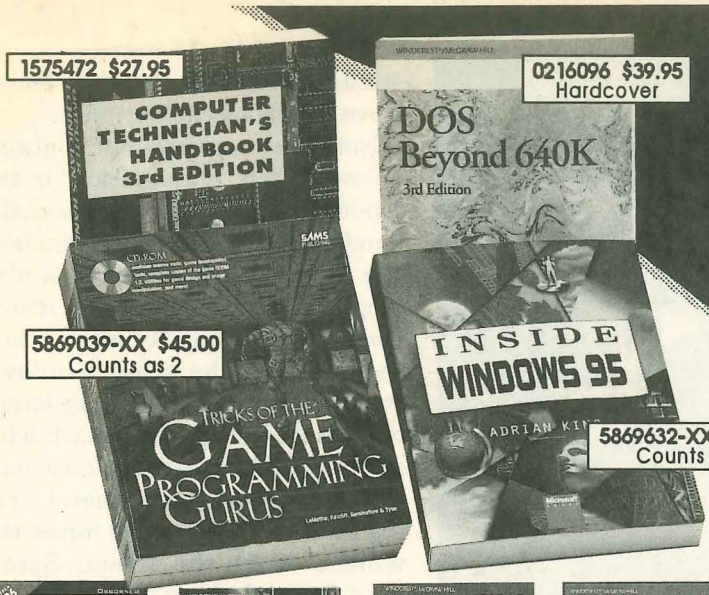

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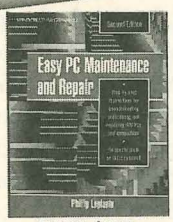

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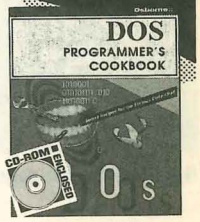

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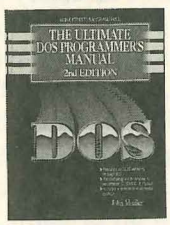

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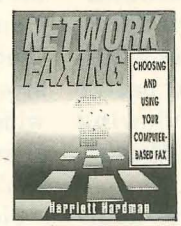

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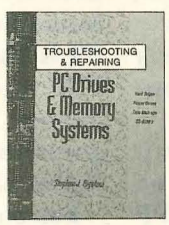

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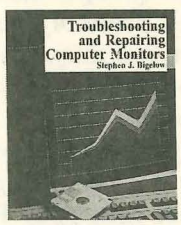

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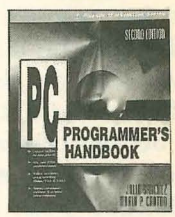

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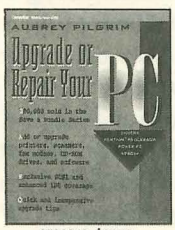

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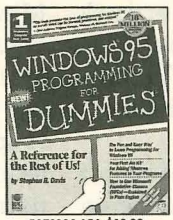

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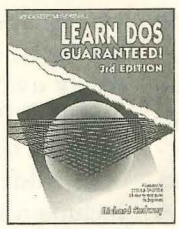

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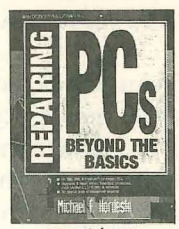

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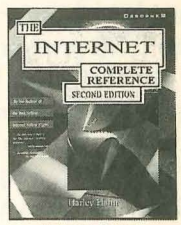

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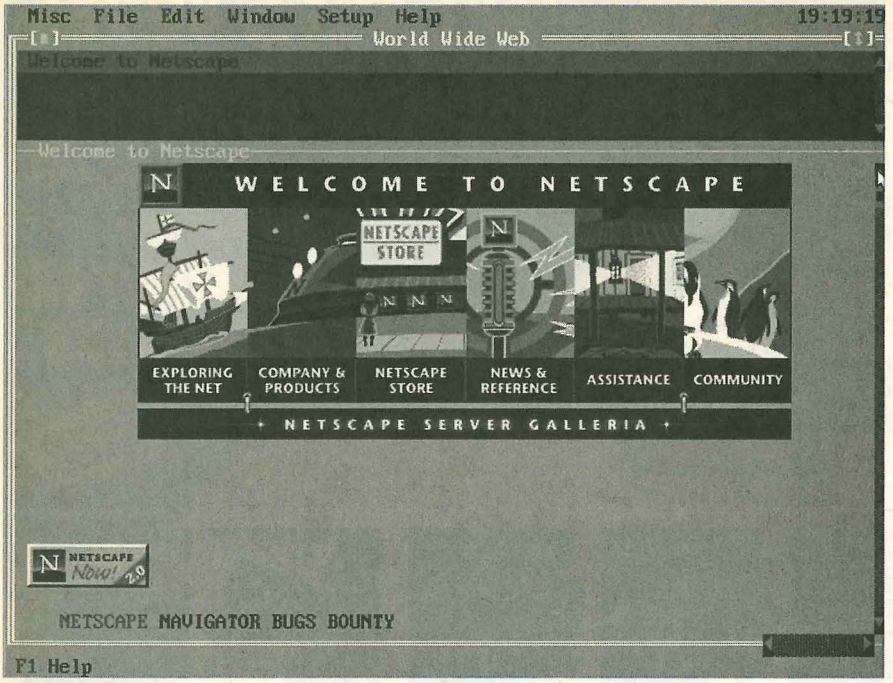


Netscape's home page on the World Wide Web is colorful and easy to access.

first three number groups—199.44.6, in my case—will probably never change; the last one may or may not change, depending on your ISP's configuration.

Jot down your IP address; you'll need it in a moment, after firing up Minuet. Confirm that your PPP connection is valid; EtherPPP will reside in memory and return you to the DOS prompt.

By the way, if you check your system's RAM status now by typing `MEM /C`, you'll see that EtherPPP is *big*, requiring more than 120K of conventional memory. Depending on your system's setup, any other drivers loaded, and so on, you may want to consider a different package. Although most of Minuet's features run fine under EtherPPP, its Web browser doesn't always coexist peacefully with EtherPPP; Minuet may crash and return you to the DOS prompt with a RUNTIME ERROR 204. You can simply restart Minuet, but after four or five times, your patience is going to grow thin.

An alternative to the memory-hungry EtherPPP is a package called **PPPPKT** (for PPP Packet Driver). Like EtherPPP, it's available on line, from the **oak.oakland.edu** FTP site. Though PPPPKT is less of a RAM hog than EtherPPP and so offers you a better chance of successfully viewing graphical Web pages with Minuet, it does have a down side.

For one thing, it requires additional files, included with Novell's commercial local-area-network products. Novell makes those files freely available from its FTP site, and PPPPKT comes with instructions for obtaining them.

In addition, PPPPKT doesn't include a component for dialing an ISP. Instead, you use a general-purpose telecommunications package, such as Telix, to make the connection and then turn control over to PPPPKT.

On Line at Last

Continuing your Internet quest, change to the directory in which you installed Minuet. Type `MINUET` and press Enter to start the program. You'll see a series of overlapping text windows (see the first screen shot, page 37), including an identification panel with copyright and version information. Look carefully at the contents of these windows; you can view any one of them simply by clicking on it.

Note that each window contains a down-arrow "close button" in the top-left corner. Click it to close the window; use the Window menu at the top of the Minuet screen to reopen it. The identification screen closes automatically after a few seconds, but the other windows stay open, each one hidden by larger ones in the foreground. Each window also contains a "maximize button" in the top-right corner. Clicking the up-arrow symbol forces the window to fill the screen. Scroll bars, located along the right and bottom, provide viewing information that doesn't fit in the visible portion of the window.

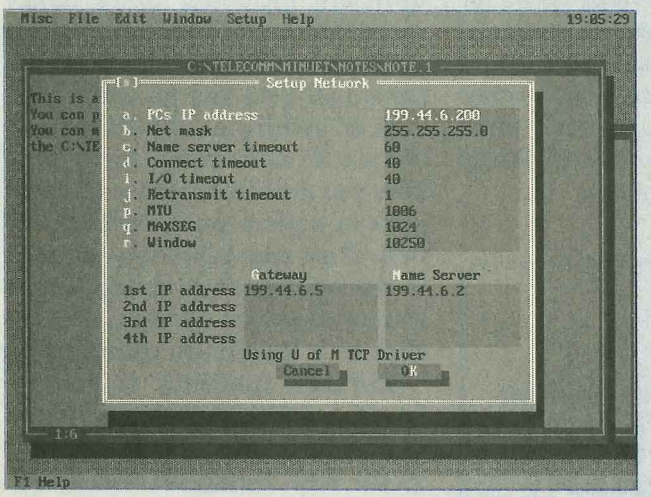
You're still not "on the Internet" yet; these windows just show you the contents of various files in Minuet's directory on your own PC. Complete the steps listed in the "Setting Up Minuet" sidebar (opposite). Except for the IP address, which may change from time to time as reported by EtherPPP's message, you'll have to do this only once.

Now on to using Minuet's Internet clients. Along the bottom of the Minuet screen is a list of function keys that call up individual client features. (Viewer and Composer are for reading and writing e-mail, respectively; the other clients are as indicated.) I got a kick out of using Minuet's Web browser to access the "home page" (the central Web location) for **Netscape**, currently the "hot" GUI-based browser, with 70 to 80 percent of the market. (See the second screen shot, above left.) Here's how to get to it on your own PC and how to use the Web's features from Minuet.

First, go to the function-key list at the bottom of the Minuet screen, and press F8. Minuet immediately opens a window asking for a "starting point" for your Web browsing. By default, it suggests the Web server you chose in the Setup Servers window, but you can enter any other valid Web address. An

SETTING UP MINUET

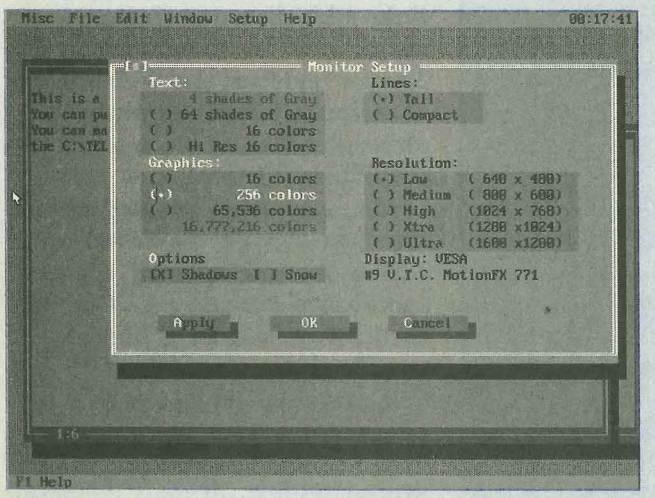
Once you've installed Minuet in its own directory, you must make it aware of the network it's going to be accessing. First, in the Minuet directory type `minuet` at the DOS prompt and use your mouse to click on the Setup command on the top line of the Minuet screen. When the menu opens, click on the Network subcommand.



Your Internet service provider will supply you with the correct information for Minuet's Setup Network screen.

The first screen shot (above) shows Minuet's Setup Network window, where you enter information supplied by your ISP when you open your account. (Values shown are specific to my case.) Don't worry about what this data means; just be sure to type it correctly.

One item in this window may not be available until you run EtherPPP: your PC's IP address. Tab to this field if it's not already highlighted, or simply click on it with your mouse; enter the IP address reported by EtherPPP.



Minuet's Monitor Setup screen lets you designate graphics mode.

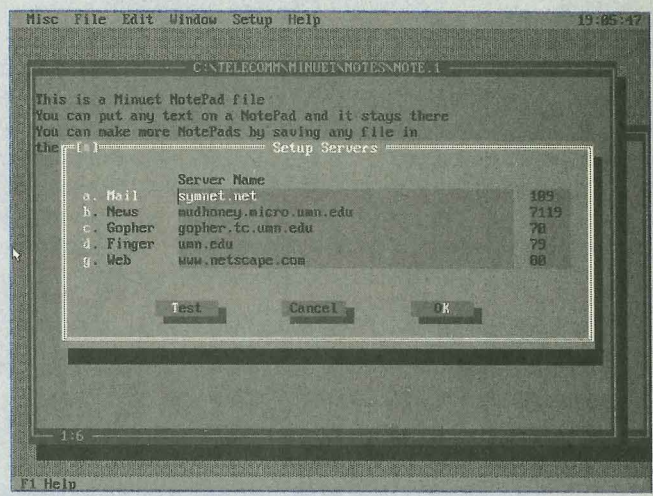
Note that you may have to change this value each time you use EtherPPP; the others, however, will remain constant.

Click on OK to close the Network Setup window. Now select the Setup menu at the top of the screen again; choose the Servers command this time.

Your ISP should have supplied you with the correct information to enter into the Setup Servers window. (See the second screen shot, below.)

Note that Minuet comes preconfigured to use servers (except for e-mail) at the University of Minnesota. I've entered the address of my own ISP's mail server and overridden Minuet's default Web server with the address I'll be using, as noted in the main article. Click on OK to close the Setup Servers window.

Finally, if you want to display graphics images when you're browsing the Web—as most people do—tell Minuet to put your monitor into graphics (as opposed to text) mode.



Minuet's Setup Servers screen lists the computer addresses you're tapping into.

To do so, click on the Setup menu command one more time, and select the Monitor option.

The Monitor Setup window (see the third screen shot, left) contains several panels of radio buttons. By default, Minuet assumes that you want only text-based display; to activate graphics mode, click on one of the radio buttons for number of colors (256 is a good starting point) and select a resolution from the list alongside it.

Don't click on OK right away; first click on Apply, and check to see that your monitor display is acceptable. If not, select Cancel and try a different setting.

Be prepared to fiddle with the setting several times to get it right, so that it won't crash or lock up your system.

—J.E.S.

address usually starts with **http://** followed by the location itself; with Minuet's browser, omit the **http://** prefix and enter just the actual address.

When you've entered a Web-server address, click OK. Minuet goes through your ISP to connect to that server and download the contents of the page you specified (or a default page, if you didn't request one). That may take up to several minutes for complex or graphics-intensive pages (and the slower your modem, the longer it will take). But as you can see in the second screen shot, the results can be gratifying—including more color than you're probably used to from dialing into a character-based BBS.

Also note that when you scroll down, some text appears in color: black for the most part, but with scattered phrases in blue. These highlighted phrases are Web *hypertext links*, or *hyperlinks* for short. If you double-click on one of them, the Web software (and Minuet) will branch to some other document, perhaps on the same server or perhaps on a completely different and distant one.

One minor difference between Minuet's browser and GUI-based browsers is that with the latter, you click just once to activate a hyperlink. Other differences are more significant. For example, the shareware version of Minuet doesn't yet support features commonly offered by other Web browsers, including tables; image maps ("clickable" pictures; Minuet displays the images, but clicking on them just gets you an error message or nothing at all); forms; and "forward" and "back" buttons to take you automatically to the next place or a place you've already visited. (This capability is simulated in the small pane at the top of the Minuet browser window; double-click on a location to return to it.)

Minuet's inability to handle forms is particularly troublesome when you're hunting for something on the Web. Nearly all Web-search software displays (to a GUI browser) a form where you enter the keyword(s) for which you're hunting. With Minuet, such screens seem to display nothing at all except a tantalizing prompt; there's no area in which to actually type in what you're looking for.

As you use the Minuet browser, you'll find other quirks. For example, I've discovered that text colors aren't consistent when I visit a page more than once in a single session (which makes identifying hyperlinks a bit disconcerting). And, as mentioned in the "Setting Up Minuet" sidebar, the Web browser occasionally crashes altogether, although that's as much a problem with EtherPPP as Minuet.

Still, anomalous behavior and all, there's no denying the excitement of surfing the Internet with a simple, speedy, and 100-percent DOS-based client. With EtherPPP, Minuet, and the IP address furnished by your ISP, you're as much a part of the Internet as is a supercomputer in Pittsburgh, a Unix workstation in Silicon Valley—or your annoying GUI neighbor across the street. ■

DOS Tip: Clean Up Your DOSKEY Macros

The biggest problem with DOSKEY macros is that they display their commands as they run. Including an ECHO OFF command at the beginning of a macro reduces clutter by suppressing the DOS prompt, but you still see the commands. If you use CTTY NUL by itself, you won't see any output at all.

You can achieve the desired effect, however, by combining CTTY NUL and redirection. The trick is to redirect the output you want to see back to the console after using CTTY NUL. For example, this macro doesn't echo any commands when it prints a message on the screen:

```
DOSKEY WRITE = CTTY NUL $T ECHO This line is displayed $G CON $T CTTY CON
```

except for the first CTTY NUL, which you can't hide. If you need keyboard input as well as output, you may redirect both as follows:

```
DOSKEY INPUT = CTTY NUL $T PAUSE $L CON $G CON $T CTTY CON
```

The next macro uses this technique to display all the files in the current directory that match a list of filenames:

```
DOSKEY LIST = CTTY NUL $T ATTRIB -A $T FOR %N IN ($*) DO ATTRIB +A
  %N $T DIR /AA /OE /P $L CON $G CON $T ATTRIB +A $T CTTY CON
```

Unlike the DIR command, my macro lets you search for several filenames or extensions at once by typing LIST *file1.ext file2.ext...* at the DOS prompt. For example, to see all executable files, type:

```
LIST  *.EXE *.COM *.BAT
```

To see firsthand how adding CTTY NUL changes the command's results, run the macro as is, then delete CTTY NUL and run it again.

You should know one more detail: You may redirect only a command's output to the console; you may not redirect its error messages. This is true because error messages always go to the standard output device, which normally is the console. The CTTY NUL command changes the standard output device to NUL. For my macro, that doesn't matter. If you type a nonexistent filename, there simply won't be any files listed after the directory header.

A word of warning: The LIST macro sets and resets the archive attribute of all files. If you use that attribute as part of a regular backup regimen (to determine which files are new or were modified recently), don't use LIST.

—Richard Penn

The Keys To the Keyboard

Unlock the secrets to executing commands faster and personalizing keyboard layouts so that your keys are exactly where you want them.

by Ken Johnson

Ever listen to yourself while you're working at the DOS prompt? For many people, a typical session goes like this: *Tap, tap, tap, reach, tap. Enter. Oops! Tap, tap, tap. Pause . . . reach. Tap. Enter. Got it that time!*

No one should have to work that hard at the DOS prompt, especially because DOS offers not one but two programs for cutting down on typing—and typos. They go by the names of ANSI.SYS and DOSKEY.COM. Both let you set a complex command in motion with a single keypress. ANSI.SYS offers the added advantage of letting you change a key's function. That means you can effectively reposition your keyboard's backslash key or any other key you feel is out of place.

Because of its wider range of features, I'll introduce you to ANSI.SYS first. It presents more challenges than DOSKEY, but if you need what it has to offer, you'll find the extra effort worthwhile.

Contributing Editor Ken Johnson is training and support manager at the law firm of Mayer, Brown & Platt in Chicago. He writes for several business and computer-law publications. He's currently working on a book about tools for creating Web pages.

Fun with PROMPT and ANSI.SYS

ANSI.SYS is what's called a *device driver*: a program that acts as a bridge between DOS and your hardware. It gives you greater control over your screen and keyboard. For example, it lets you add color to the DOS screen, position the cursor anywhere on screen, and change what a key does when you press it. Unfortunately, ANSI.SYS commands are difficult to remember, and it's hard to type them while working at the DOS prompt. If you know how to manipulate these commands by placing them in a PROMPT command within a batch file, however, you can harness the power of ANSI.SYS more easily.

Load ANSI.SYS by typing `DEVICE=ANSI.SYS` or `DEVICEHIGH=ANSI.SYS` at the DOS prompt, or by adding the command to your CONFIG.SYS file. For the remainder of your computing session, DOS filters all input and output through the driver, which looks for two characters that show the start of an ANSI.SYS instruction: an "escape" character, which is 27 decimal or 1B hexadecimal, and a left bracket ([), which is 91 decimal or 5B hex.

When ANSI.SYS spots these two characters, it executes the instructions that follow, which typically include characters, numbers, text, and punctuation. ANSI.SYS commands are case sensitive, so you can't use an uppercase letter in place of a lowercase letter, or vice versa.

Because ANSI.SYS instructions always begin with an escape character, they're often called *escape sequences*. Unfortunately, you can't produce an escape sequence by pressing the Esc key at the DOS prompt, because DOS interprets that as a request to cancel the current command. It will clear the command, print a backslash, and then drop down a line to await a new command. (If DOSKEY.COM is loaded, pressing Esc simply clears the command line.)

You can easily enter an escape character, however, by inserting `$E` in a PROMPT command. The only drawback to that approach is that using PROMPT this way wipes out

your standard DOS prompt, so you must reset it. As you'll see in a moment, that's easy to do.

An instruction for redefining keys includes five parts. Consider, for example, the following instruction, which redefines the key for the right square bracket so that it produces a close parenthesis:

```
ESC[93;41p
```

The parts of this instruction are as follows:

- The standard ANSI.SYS prefix, ESC[. Remember that ESC stands in for the escape character; you have to replace it with something else—$E in a PROMPT command, for example. If you type the above line at the DOS prompt and press Enter, all you'll get for your trouble is a "Bad command or file name" message.
- The code for the key you want to redefine. In this case, the value is 93, the code for the right square bracket. (See the table "ANSI.SYS Values for Alphabetic Characters," below left.)
- A semicolon, which separates the key codes.
- The redefined character(s) for the key. 41 is the value for the close parenthesis.
- The ANSI.SYS suffix, which in this case is *p*.

ANSI.SYS also lets you redefine nonalphabetic and nonnumeric keys (see the table "ANSI.SYS Values for Function-Key Combinations," right), as well as key combinations. These extended keys and key combinations typically carry a double key-code value, the first of which is zero. You must separate double codes with a semicolon. This sequence, for instance, redefines the F12 key (0;134) as the F1 key (0;59):

```
ESC[0;134;0;59p
```

When you use ANSI.SYS to redefine keys, you may access certain extended keys, including F11 and F12, only if you add a /X switch to the command you use to load ANSI.SYS.

You must also use this switch if you want to give the extended keys and the keypad keys separate assignments: for example, if you want to assign the gray Home key to perform a different function from the one assigned to the keypad's Home/7 key.

You should keep several other limitations in mind, as well. When you use ANSI.SYS to redefine one or more keys, the new definitions usually work only from the DOS prompt. Don't expect them to work from within a full-screen DOS program, such as Edit or MSBackup, or within an application, such as a spreadsheet or database. Most DOS programs provide their own techniques for redefining keys.

Also, be careful when choosing which keys to redefine. Avoid changing the assignments for the Enter key or the alphabetic keys; doing so could make it impossible to conduct any business at the DOS prompt. If you also use DOSKEY, avoid redefining F7, F8, F9, Alt+F7, and Alt+F10, all of which DOSKEY uses.

Finally, be aware that DOS doesn't provide a way to list the current ANSI.SYS assignments or to "undefine" keys. To reinstate a key's standard function, you must reassign its original value or reboot.

Commands in an Instant

In addition to letting you move keys around, ANSI.SYS also gives DOS rudimentary macro capability. For example, you can assign escape sequences to execute the commands that you use most often. Just don't overdo it. ANSI.SYS main-

ANSI.SYS VALUES FOR ALPHABETIC CHARACTERS

Letter	Values Ctrl+*letter*	Values Alt+letter
A	1	0;30
B	2	0;48
C	3	0;46
D	4	0;32
E	5	0;18
F	6	0;33
G	7	0;34
H	8	0;35
I	9	0;23
J	10	0;36
K	11	0;37
L	12	0;38
M	13	0;50
N	14	0;49
O	15	0;24
P	16	0;25
Q	17	0;16
R	18	0;19
S	19	0;31
T	20	0;20
U	21	0;22
V	22	0;47
W	23	0;17
X	24	0;45
Y	25	0;21
Z	26	0;44

ANSI.SYS VALUES FOR FUNCTION-KEY COMBINATIONS

Use the following ANSI.SYS values to redefine function keys. The second column provides the values for each function key on its own. Subsequent columns list the values when you use the function key with Shift, Ctrl, or Alt.

Function Key	Values Alone	Shift+	Ctrl+	Alt+
F1	0;59	0;84	0;94	0;104
F2	0;60	0;85	0;95	0;105
F3	0;61	0;86	0;96	0;106
F4	0;62	0;87	0;97	0;107
F5	0;63	0;88	0;98	0;108
F6	0;64	0;89	0;99	0;109
F7	0;65	0;90	0;100	0;110
F8	0;66	0;91	0;101	0;111
F9	0;67	0;92	0;102	0;112
F10	0;68	0;93	0;103	0;113
F11	0;133	0;135	0;137	0;139
F12	0;134	0;136	0;138	0;140

tains a table of redefinitions, which may not exceed 400 bytes (200 bytes in DOS 3.3 and earlier).

To take advantage of ANSI.SYS's macro capability, place the command within quotes; then follow it with ;13, the ANSI.SYS value for the Enter key. If you don't do that, ANSI.SYS displays the command on the command line; you must press Enter to execute it. This command, for instance, redefines the key combination Alt+F1 to execute the command MEM /C /P:

```
PROMPT $E[0;104;"MEM /C /P";13p
```

When you press Alt+F1, DOS displays a memory report one page at a time; that report tells which programs are in conventional and upper memory and how your system is using expanded and extended memory.

This sequence sets up Alt+D to display files in the current directory, sorted in descending order by date:

```
PROMPT $E[0;32;"DIR /O-D /A-D /P";13p
```

Only filenames (no directories) appear in the listing, and the display pauses when the screen fills.

This command redefines the F10 key to provide a list of DOSKEY macros:

```
PROMPT $E[0;68;"DOSKEY /M";13p
```

This one redefines Shift+F6 key to run ScanDisk on the current drive:

```
PROMPT $E[0;89;"SCANDISK";13p
```

If you want to define the F1 key to provide help with the text entered on the command line, try this simple macro:

```
PROMPT $E[0;59;" /?";13p
```

If you enter text on the command line and press the appropriate redefined key, the string assigned to the key is appended to the text you entered. In this case, pressing the F1 key appends /? to the end of the command line and executes the command.

The following command sets up Alt+T to execute a TREE command, which displays a branching diagram of the current directory and its subdirectories:

```
PROMPT $E[0;20;"TREE";13p
```

Batch-File Solutions

Because typing key definitions is tedious, use a batch file to set up ANSI.SYS assignments. The accompanying program listing, ANSI_DEF-.BAT (page 47), shows how to go about it. I've included numerous comments because it's difficult to figure out from the ANSI.SYS commands which key combinations you need to press.

The batch file also shows how to preserve your DOS prompt and reinstate it after assigning all your ANSI.SYS definitions. The fourth line of the listing uses this command to save the current prompt in an environment variable called PROMPT:

```
SET OLDPROMPT=%PROMPT%
```

At the end of the batch file, these lines restore the former prompt and clear the environment variable OLDPROMPT:

```
PROMPT=%OLDPROMPT%
SET OLDPROMPT=
```

If you always use the same prompt, you can skip the step in which you save the old prompt. Instead, simply set your prompt at the end of the batch file.

DOSKEY COMMAND SYNTAX

DOSKEY [BUFSIZE=*size*] [/INSERT or /OVERSTRIKE] [/REINSTALL] [/MACROS] [/HISTORY] [*macroname*=[*commands*]]

- /BUFSIZE=*size* specifies the size of the DOSKEY buffer in which macros and the command stack are stored. The default size is 512 bytes, with a minimum of 256 bytes. If the buffer fills, the oldest commands are deleted from the command stack. To save more commands and to allow space for additional macros, increase the buffer to 1024 or 2048 bytes.
- /INSERT or /OVERSTRIKE selects the default editing mode for the command line. By default, DOSKEY is in overstrike mode. You can easily toggle between the two by pressing the Insert key. Whenever you press Enter, however, DOSKEY puts you back into overstrike mode.
- /REINSTALL installs a new copy of DOSKEY. This lets you change the buffer size, for example, without rebooting. The old copy of DOSKEY stays in memory, however, occupying about 4K of RAM that won't be available for other programs.
- /MACROS (or /M) displays a list of the currently defined macros.
- /HISTORY (or /H) displays all commands in the command stack. (This is similar to pressing F7, but no line numbers are given.)
- *macroname*=[*commands*] creates a DOSKEY macro. *macroname* is the name of the macro; *commands* are the DOS commands you want to execute when you type a macro's name at the DOS prompt. If you type *macroname*= by itself, that macro is deleted from the buffer.

On 386 and 486 computers, you can use a LOADHIGH command to install DOSKEY into upper memory. If you have upper memory to spare, increase DOSKEY's buffer size to give DOSKEY room for recording commands and macros.

—K.J.

The DOSKEY Way

PROMPT and ANSI.SYS make a powerful team, but it's annoying to keep looking up codes. What's more, the technique is inflexible in certain regards. Although you can redefine combinations such as Shift+F6, for example, you can't select two periods as your key combination. In addition, you can't override key definitions temporarily. DOSKEY macros let you overcome these limitations.

But DOSKEY doesn't work like ANSI.SYS. Instead of redefining a key, you create macros with the same name as the keypress. When you load DOSKEY, it examines everything you type at the command line, looking for a macro. When you press the right key sequence and hit Enter, DOSKEY intercepts the macro, "translates" it into its command, and then sends the command along to the DOS interpreter.

To create a DOSKEY macro, you need to load DOSKEY.COM first. If you want your collection of DOSKEY macros available whenever you're at the DOS prompt, it's best to add a command such as this to your AUTOEXEC.BAT file:

```
DOSKEY macroname=[commands]
```

where *macroname* is the name of the macro and *commands* are the DOS commands or program names you want to execute when you enter the macro name at the DOS prompt. If you type macroname= by itself, DOSKEY deletes the specified macro.

One advantage of using DOSKEY is that its macro names don't carry the same restrictions as DOS filenames. You can include the following "illegal" DOS characters in macro names:

```
* ? + . / \ : ; [ ]
```

The names of DOSKEY macros may also contain certain Ctrl-key combinations, including the following:

```
^A ^B ^D ^E ^G ^K ^L ^N ^O ^Q ^R
^U ^V ^W ^X ^Y ^Z
```

These are examples of legal DOSKEY macros:

```
DOSKEY ^A=EDIT C:\AUTOEXEC.BAT $T
  EDIT C:\CONFIG.SYS
DOSKEY ^D=SCANDISK C:
DOSKEY ?=HELP $1
DOSKEY ..=CD ..
DOSKEY ...=CD .. $T CD ..
DOSKEY \=CD \
```

If you type each of these in turn at the DOS prompt, you can then press Ctrl+A and Enter to edit your AUTOEXEC.BAT and CONFIG.SYS files. Pressing Ctrl+D, Enter runs ScanDisk on drive D. Typing the question mark and pressing Enter brings up DOS's HELP.COM program; or you can type a question mark and a command to get information about that command. (The word after the ? becomes the replaceable parameter $1, which is passed to the Help program.)

The last three macros show how to use DOSKEY to navigate directories. Typing two periods and pressing Enter moves you to the parent directory; typing three periods and pressing Enter moves you up two directories. Type a backslash and Enter to move to the root.

After typing the name of a DOSKEY macro, you must press the Enter key. You can't include a code for Enter in your DOSKEY definition, as you can in an ANSI.SYS definition. You can, however, override a DOSKEY macro. To take advantage of

DOS Tip

All Parameters Big and Small

The batch language's IF comparisons are case sensitive; if your batch file needs to check the value of a replaceable parameter you've typed at the DOS prompt, you have to scout out all possible upper- and lowercase combinations.

Let's say, for example, that your batch file expects the parameter GO or STOP. Ordinarily, you'd use these commands to check for the parameters:

```
IF "%1"=="go" GOTO RUN
IF "%1"=="GO" GOTO RUN
IF "%1"=="stop" GOTO NORUN
IF "%1"=="STOP" GOTO NORUN
```

But what if someone types Go or Stop? What about weird combinations, such as g0 or sTOP, which could turn up if Caps Lock were on?

To test for every possible combination, use an environment variable, because DOS converts the names of environment variables to uppercase. The following lines handle all variations of GO and STOP:

```
SET %1=XYZ
IF "%GO%"=="XYZ" GOTO RUN
IF "%STOP%"=="XYZ" GOTO NORUN
```

The SET statement creates an environment variable, equating it with the first parameter typed on the command line (%1). If the user types go, GO, Go, or g0, this statement is interpreted as SET GO=XYZ. If the user types any of the possible variations of STOP, the statement is interpreted as SET STOP=XYZ.

The next two lines of this batch-file fragment test for the existence of environment variables named GO or STOP. They're true only if the user types GO or STOP on the command line.

—Ken Johnson

The demonstration program ANSI_DEF.BAT shows how you might use a batch file to save your DOS prompt, assign several ANSI.SYS macros that execute DOS commands, and reinstate your usual DOS prompt.

```
@ECHO OFF
:: Redefines keys using ANSI.SYS.
:: IMPORTANT: Load ANSI.SYS before running the batch file.
SET OLDPROMPT=%PROMPT%
:: Defines Alt+F1 to display information on memory use.
PROMPT $E[0;104;"MEM /C|MORE";13p
:: Defines Alt+D to display a directory.
:: Entries are sorted by date; directories are omitted.
PROMPT $E[0;32;"DIR /O-D /A-D /P";13p
:: Defines Shift+F6 to run ScanDisk.
PROMPT $E[0,89;"SCANDISK";13p
:: Defines F1 to list help information on the previous command.
PROMPT $E[0;59;" /?";13p
:: Defines F10 to provide list of DOSKEY macros
PROMPT $E[0;68;"DOSKEY /M";13p
:: Defines Alt+T to execute TREE for the current directory
PROMPT $E[0;20;"TREE";13p
:: Now restore the original prompt
PROMPT=%OLDPROMPT%
SET OLDPROMPT=
```

End

this technique, you have to create a macro with the same name as a DOS command. Let's say that most of the time you want your directory listings to show only files, and that you want those files listed according to creation date, with the oldest listed first. This DOSKEY macro accomplishes that:

```
DOSKEY DIR=DIR /A-D /OD
```

If, at some point, you want see a list of files with the newest ones shown first, you can override the macro by pressing the spacebar and then typing `DIR /A-D /O-D`.

ANSI.SYS or DOSKEY?

ANSI.SYS and DOSKEY solve some of the same problems, but they go about their business in different ways. Is one the clear winner? Not as far as I'm concerned. Before trying either one, I recommend that you consider all the angles:

- FLEXIBILITY. For greater flexibility and access to more key combinations, pick ANSI.SYS. It lets you redefine every keyboard key and nearly every keyboard combination. DOSKEY allows redefinition of only number and letter keys, some punctuation keys, and some Ctrl-key combinations.
- UNUSUAL KEY SEQUENCES. If you want to redefine certain key sequences, such as two periods (..), you'll need DOSKEY.
- OVERRIDE CAPABILITY. With DOSKEY, you may simply put a space before the macro to tell DOS to ignore the key redefinition. To reinstate the key, reissue the DOSKEY command and set *macroname* equal to nothing. You can't override an ANSI.SYS key definition temporarily. It remains in effect until you reboot or redefine the key's original function.
- BETTER HOUSEKEEPING. If you need to keep track of your key assignments, choose DOSKEY. You can display a list by typing DOSKEY /M. ANSI.SYS doesn't offer any way to do that.
- PARAMETERS. DOSKEY lets you pass parameters (for example, $1 and $2) on which the commands in the macro can act. ANSI.SYS doesn't offer this capability, although it does let you append typed text to the end of the key definition or append a key definition to the end of typed text.

After weighing the possibilities, you may find that you'd like to use both programs. More power to you—literally. The only drawback I can see is that each program steals about 4K of memory. If that's what it takes to get DOS working the way you want it to, I say go for it. ■

ANSI.SYS COMMAND SYNTAX

DEVICE=[*path*]ANSI.SYS [/X or /K] [/R]

or

DEVICEHIGH=[*path*]ANSI.SYS [/X or /K] [/R]

- *path* identifies the location of the ANSI.SYS file. The default is the root directory of the boot drive.
- /X lets you remap the gray keys independent of the numeric-keypad keys for the same functions. Use this switch only if you have an extended keyboard (one with 101 keys).
- /K tells ANSI.SYS to treat an extended keyboard like an 84-key keyboard. You may need to use this if you have an older program that doesn't recognize the extended keys on a 101-key keyboard. If CONFIG.SYS includes SWITCHES=K, you need to use the /K switch with ANSI.SYS also.
- /R modifies the way the display scrolls, improving legibility when used with screen-reading programs for those with visual disabilities.

—K.J.

BATCH-FILE MEDIC

Going Home

Find your way back to your base drive and directory after running a program. DOS offers four techniques that'll put you on the right track.

by Hardin Brothers

One of DOS's primary characteristics is that it often gives you several ways to do the same job. This month, we're going to explore alternative techniques for solving a common batch-file problem: storing the current drive and directory information for later use. In our examples, that later use is to return to a drive and directory after you've run and exited a program. Along the way, I'll explain the strengths and weaknesses of each solution.

Don't Leave Home Without It

Other than AUTOEXEC.BAT, probably the most common batch file is built around some variation of these three lines:

```
X:
CD X:\DIR1\DIR2
MYPROG
```

The first line sets the default drive and is most commonly used on systems with multiple hard-drive volumes or those connected to a network. The second line moves to a specific subdirectory on that drive. The third line runs a program.

Sometimes these simple batch lines are repeated over and over within a larger batch-based menuing program. Sometimes the batch file changes values in the environment before running a program. Sometimes it lets the user select a directory in which to work. But its basic function remains the same: changing to a new directory and running a program.

What happens when the program is done? You return to the DOS prompt, of course. But on what drive and in what subdirectory? You wind up wherever the batch file and program decide to leave you. I really dislike being dumped in a random directory after I leave a program. The simple solution is to add two lines to the end of your batch file:

```
Y:
CD Y:\DIR1
```

These lines return to a specific drive and directory once the program is finished. You could add them to every batch file that changes directories and runs a program. But if you change your mind later about where you want to end up, you'll have to do a lot of editing. A better solution is to put these two lines into a new batch file, named something like HOME.BAT. Then put this line:

```
CALL HOME
```

at the end of each batch file and batch routine that switches directories and runs a program. If you change your mind about where you want to end up, simply edit HOME.BAT, not each of your batch files. (This method assumes that HOME.BAT is in a directory in your path.)

The advantage of these two solutions is that they're direct, simple, and predictible. They always work, and they always leave you in the same directory after you close a program.

That's also their biggest disadvantage. I maintain a carefully structured subdirectory tree for each of

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Here are two simple ways to return to the original drive and directory after a batch file ends.

```
REM The simplest method
REM ...  Do real work here
CD X:\DIR1\DIR2
X:
```

End

```
REM A little more elegant
REM ... Do real work here
CALL HOME
```

End

my hard drives; after I run a program, I'd like to end up exactly where I started, not in an arbitrary directory I picked six months ago.

If you feel the same way, you need a batch-file technique that saves the current drive and directory and then returns to them after the program is finished. And that's going to be a little more difficult, because HOME.BAT will have to be flexible enough to change to a different drive and directory each time it runs.

Collecting Quirks

To create a more powerful HOME.BAT, the first step is to examine one of DOS's quirks. To change to drive X, you probably type the command X:. What you may not know is that there's another command that does the same thing: X:\. Why does it work? I don't know, but it certainly makes HOME.BAT much easier to write. Conveniently, X:\ is a command to change to drive X and is also the name of drive X's root directory.

The second piece of information we need is something almost everyone learns by accident: The command CD by itself displays the name of the current default directory in the format X:\DIR1\DIR2. That's not a quirk or an exception, but a well-documented feature of the CD (or CHDIR) command.

We'll also use an undocumented command called TRUENAME, which displays a file's or subdirectory's name, including its path, after removing any remapping performed by commands such as SUBST and ASSIGN. As far as I know, TRUENAME first appeared in MS-DOS 5 and is present in every version of DOS since then.

Another Place

It's not difficult to generate the name of the current directory and save it to a file. The command CD > HOME.BAT does that very well. (From here on, I'll assume that you'll use the appropriate path to HOME.BAT. For example, if you keep all your batch files in a subdirectory called BAT, the actual command will be CD > C:\BAT\HOME.BAT.)

The problem is that what we really want is a line that issues the CD command and then states the current directory. And that's more difficult to generate. One obvious way to attack the problem is to try these two commands:

```
ECHO CD > HOME.BAT
CD >> HOME.BAT
```

After you execute those two lines, HOME.BAT contains this sequence:

```
CD
X:\DIR1\DIR2
```

The first ECHO added a carriage return after CD, just as it was supposed to. That's not what we want,

HOME.BAT. Returning to the current drive and directory.

```
CD X:\DIR1\DIR2
X:
```

End

DOS Tip

ON THE UP-AND-UP

One drawback of batch files is the batch language's lack of a function to convert passed parameters to all uppercase letters. Having this capability not only would make it easier to check parameters but would also speed execution by reducing the number of lines required. I've found a way to add this feature with the PATH command. My short batch file, UCASE.BAT, shows how to use my technique.

The line SET OLDPATH=%PATH% saves the current path in a batch file so that you can restore it after capitalizing the characters in the passed parameter. Next, PATH %1 sets the path equal to the passed parameter. The line SET ENVVAR=%PATH% stores the parameter in an environment variable, and SET PATH=%OLDPATH% restores the original path. Finally, SET ENVVAR= cleans up the environment.

—Vincent D. O'Connor

UCASE.BAT shows how to use the PATH command to give batch files the ability to quickly convert passed parameters to uppercase characters.

```
@ECHO OFF
IF '%1'=='' GOTO DONE
SET OLDPATH=%PATH%
PATH %1
SET ENVVAR=%PATH%
SET PATH=%OLDPATH%
ECHO The capitalized parameter is %ENVVAR%
SET ENVVAR=
:DONE
```

End

Here are three ways to create the first line of HOME.BAT automatically. This method assumes that HOME.DAT contains 3 bytes: C, D, and space.

```
COPY C:\BAT\HOME.DAT C:\BAT
  \HOME.BAT
CD >> C:\BAT\HOME.BAT
```

End

Method 2 assumes that DEBUG.COM is accessible in the current directory or in some directory in the path.

```
ECHO E100 43 44 20 > HOME.SCR
ECHO NC:\BAT\HOME.BAT >>
  HOME.SCR
FOR  %%C IN (RCX 3 W Q) DO ECHO
  %%C >> HOME.SCR
DEBUG < HOME.SCR > NUL
DEL HOME.SCR
CD >> C:\BAT\HOME.BAT
```

End

Method 3 assumes that space is available in the environment and that you're not using DOS 7 under Windows 95.

```
DIR | FIND ":\" > TEMP.BAT
ECHO SET Curdir=%%2 > DIRECTOR.BAT
CALL TEMP.BAT
DEL DIRECTOR.BAT
DEL TEMP.BAT
ECHO CD %Curdir% > C:\BAT\HOME.BAT
```

End

though. So our first problem is how to store CD plus a space in HOME-.BAT without following it with a carriage return.

DOS offers several options for doing that. One way is to create a file called HOME.DAT containing CD and a space, but no carriage return. You can create the file from the DOS prompt with this command:

```
COPY CON HOME.DAT
```

Now type CD and a space. Save the file by pressing Ctrl+Z, Enter. Now any text you append to HOME-.DAT will follow CD on the same line instead of on the next line.

Time to return to our original batch file. To finish creating HOME.BAT's first line, we need these commands:

```
COPY HOME.DAT HOME.BAT
CD >> HOME.BAT
```

After these lines are executed, HOME.BAT contains the line CD X:\ABC \DEF, which is exactly what we need.

The up side of this technique is that the helper file, HOME.DAT, is easy to use. The down side is that it's also easy to lose. If you forget why you have HOME.DAT and start deleting old files from your hard disk some Friday afternoon, you may well delete HOME.DAT by mistake. Also, if you give your batch file to someone else, you'll have to remember to give that person HOME.DAT and then make sure he or she stores it in the same subdirectory you've been using.

HOME Runaround

Can we write HOME.BAT completely from a batch file without relying on HOME.DAT or a similar helper file? Of course.

One of my favorite ways is to use DEBUG.COM to create the first 3 bytes of HOME.BAT. You'll need the following lines:

```
ECHO E100 43 44 20 > HOME.SCR
ECHO NHOME.BAT >> HOME.SCR
FOR %%C IN (RCX 3 W Q) DO ECHO
  %%C >> HOME.SCR
DEBUG < HOME.SCR > NUL
DEL HOME.SCR
CD >> HOME.BAT
```

The first three lines create a file called HOME.SCR, a Debug script file. The complete HOME.SCR looks like this:

Windows 95 Tip

FILE MANAGEMENT AT YOUR FINGERTIPS

To stay on top of your Win95 file-management chores, you need easy access to both Windows' MS-DOS prompt and Explorer. Fortunately, that's easy to come by, because Win95 lets you assign a shortcut key or key combination to a shortcut icon. I like to use function keys for this purpose.

Here's the procedure for assigning F5 the task of opening an MS-DOS window. First, right-click on the Start button and choose Open. Then double-click on the Programs icon and open the MS-DOS Prompt's Properties box by right-clicking on the prompt's icon. Select Program from the menu options, position the cursor in the shortcut-key box, and press F5. Click on OK.

The procedure is similar for assigning F2 to Explorer: Locate a shortcut icon for Explorer, right-click on it, and choose Properties. Then left-click on the Program tab, move the cursor to the shortcut-key field, press F2, and click on OK.

If you use Explorer often, you probably have a shortcut sitting on your desktop. If your Explorer shortcut is hidden away, navigate to it by left-clicking on Start, then on Programs. Next, double-click on the menu entry for Explorer. Unless you've tinkered with the default settings, Win95 will deposit you at an open Start Menu folder. In Explorer's right pane, double-click on Programs. Win95 will display a shortcut for Explorer in the right pane.

With these keyboard shortcuts in place, you can jump to the MS-DOS prompt by pressing F5—no matter where you are in Win95. If you want to delete files or directories, simply press F2 to call up Explorer, select the file or directory, and press the Del key. Choose another function key or key combination if you prefer. Just be sure you don't choose a key used by another application, such as your word processor or spreadsheet. When you assign a Win95 feature to a shortcut key, pressing that shortcut always starts the Win95 feature.

—Hartley B. Singer

Two ways to create the second line of HOME.BAT automatically. Method 1 assumes that you haven't used SUBST or ASSIGN to "hide" the real identity of the current drive.

```
REM real identity of current drive
TRUENAME \ >> C:\BAT\HOME.BAT
```

End

Method 2 works in most circumstances.

```
CD \
CD >> C:\BAT\HOME.BAT
CALL HOME
```

End

```
E100 43 44 20
NHOME.BAT
RCX
3
W
Q
```

The first line creates the C, D, and space in Debug's memory; 43, 44, and 20 are the hexadecimal values of those 3 bytes. The second line names the output file HOME-.BAT. (You'll need to add a path after the N in that line.) The RCX and 3 tell Debug that the output file will be 3 bytes long. W is the Debug command to write the file; Q ends a Debug session.

This technique overcomes the objection that HOME.DAT just sits around eating up a cluster of disk space and may possibly get lost. But it requires that DEBUG.COM be on your hard disk and in a directory in your path. If you don't have Debug, the program fails.

Home Again, Home Again

For a completely different way to get the first line into HOME.BAT, take a look at the output from any DIR command. One of the lines will look like this:

```
Directory of X:\DIR1\DIR2
```

To an experienced batch programmer, this line immediately suggests writing a batch file called DIRECTOR.BAT to capture and use the information it contains. Because of DOS's forgiving nature, it will run DIRECTOR.BAT if you give it the command Directory, because it simply discards anything past the eighth character.

Assuming that you have DOS 6.2 or earlier, or DOS 7 not running in a Windows 95 DOS session, here's one way to capture and use the current directory:

```
DIR | FIND ":\" > TEMP.BAT
ECHO CD %%2 > DIRECTOR.BAT
CALL TEMP.BAT
```

The first line extracts the current directory from a DIR listing and saves this line in TEMP.BAT:

```
Directory of X:\ABC\DEF
```

The second line creates a program called DIRECTOR.BAT, containing a single line:

```
CD %2
```

The third line, CALL TEMP.BAT, starts the first batch file; because it begins with the word *Directory*, that file starts the second batch file and passes it the original directory in the variable %2. The second batch file uses the CD command to return to the original subdirectory.

But we were trying to create a HOME.BAT file, so any other batch file could end by CALLing HOME. That would be an easy change if DOS understood a line like this:

```
ECHO "ECHO CD %%2 > HOME.BAT" >
  DIRECTOR.BAT
```

—that is, if we could tell DIRECTOR.BAT to write CD plus the directory name to HOME.BAT.

But DOS can't do that; using two redirection symbols in a single line confuses it. We can substitute this sequence, however, for the second line above:

```
ECHO SET Curdir=%%2
  > DIRECTOR.BAT
```

Once the current directory name is stored in the environment, our main batch file can then create HOME.BAT like this:

```
ECHO CD %Curdir% > HOME.BAT
```

Unfortunately, the above technique runs into problems under DOS for Windows 95. When you run DOS 7 from within Windows, it takes on Win95's long-filename capabilities. Given the line:

```
Directory of X:\DIR1\DIR2
```

it looks for a program called DIRECTORY.COM, DIRECTORY.EXE, or DIRECTORY.BAT.

This technique works if you run DOS 7 separately, however—either before Windows 95 boots or by picking "Restart the computer in MS-DOS mode" from the Win95 shut-down menu.

The reason is that DOS 7 doesn't support long filenames in these modes and looks for DIRECTOR.COM, DIRECTOR.EXE, or DIRECTOR.BAT. Confusing, huh?

Overdrive

So far, we've looked at three different ways to create a file called HOME.BAT, containing a single line in the format:

```
CD X:\DIR1\DIR2
```

But our original requirement was to be able to restore a drive and a directory. So now we need another line—one that names the current drive. Again, we can use various techniques.

One simple way to get the current drive name is with the undocumented TRUENAME command:

```
TRUENAME \ >> HOME.BAT
```

Using PROMPT to create HOME.BAT.

```
ECHO @PROMPT CD $P$_$N: > C:\BAT\TEMP.BAT
COMMAND /C C:\BAT\TEMP.BAT > C:\BAT\HOME.BAT
DEL C:\BAT\TEMP.BAT
```

End

That line says to find the true name of the root directory of the current drive and send that name to HOME.BAT as a new line. If you're anywhere on drive C, that command will send the line C:\ to HOME.BAT.

This technique is easy to use, but it will fail disastrously if you start in a drive created with SUBST. If you never use SUBST, you're free to use TRUENAME.

I use SUBST often to create logical drives to hold different kinds of data, so TRUENAME isn't an option for me. But there's another technique that's almost as simple and works on all systems:

```
CD \
CD >> HOME.BAT
CALL HOME.BAT
```

The first line changes to the root of the current directory. The second line adds the drive name to HOME-.BAT in this format:

```
X:\
```

Then the third line calls HOME-.BAT to move back to the original directory. You can, of course, call HOME.BAT as many times as you need to in a batch file.

Prompt Response

We've looked at several techniques for building a batch file that will return us to the current drive and directory. Does that exhaust the possibilities?

There's always at least one more way to a desired goal. So far, we've depended on the CD and DIR commands. If you're a regular reader of this series, you may remember that the PROMPT command can generate several pieces of system information, including the current drive and directory.

The command PROMPT CD P_$N: will create a prompt that looks like the following:

```
CD X:\DIR1\DIR2
X:
```

That looks a lot like the two lines we need to store in HOME.BAT. To capture them, we've got to perform a little magic:

```
ECHO @PROMPT CD $P$_$N: > TEMP.BAT
COMMAND /C TEMP.BAT > HOME.BAT
```

The first line here sends the PROMPT command (along with a leading @ sign to suppress echoing) to the file called TEMP.BAT. The second line runs a new copy of COMMAND.COM and tells it to run TEMP.BAT and then end. The output from this second copy of COMMAND-.COM is sent to HOME.BAT.

These two DOS commands work because the new copy of COMMAND-.COM will try to display the prompt after TEMP.BAT ends and before it returns to the current DOS prompt. And that new prompt will be redirected to HOME.BAT.

Picking a Favorite

Which of these techniques should you use? That depends on how you plan to use it.

If you don't mind storing a 3-byte data file, the first is the easiest. If you're sure that you'll always have Debug sitting around in your path, I'd pick the second.

Avoid the third technique, using DIRECTOR.BAT, if you may someday want to run your batch file in a DOS session under Windows 95, because of the confusion caused by long filenames.

And if you want to distribute your batch file to other users, perhaps the last technique, using PROMPT, is best, even though it's the slowest of the four presented here.

Which technique do I use? Actually, none of them. In my day-to-day computing I use 4DOS (NDOS, included in The Norton Utilities for DOS, is an older version of 4DOS) and Take Command, a 4DOS-like program for Windows. Both 4DOS and Take Command are shareware programs from JP Software, Inc. In 4DOS, this command:

```
CDD -
```

always takes you to the previous drive and directory. Or you can use the command PUSHD to save the current drive and directory, and, later, POPD to return.

Those and hundreds of other batch-file enhancements make 4DOS much more powerful and much easier to use than DOS's own COMMAND.COM. But that's a story for another column. ■

DOS Tip

FINDING YOUR WAY TO FILES

Because I often write batch files that call other batch files or QBasic programs, I need a command to display several text files consecutively. Unfortunately, DOS's TYPE command can list only one file at a time. An easy way to view several files is to type this command:

```
FIND /V "" file1 file2...
```

where *file1 file2* is a list of the files you want to see. (You can't use the wildcards * and ?.) For example, to view the files TEXT.BAT and TEXT.BAS, type:

```
FIND /V "" TEXT.BAT TEXT.BAS
```

This technique works because the /V switch makes FIND display all the lines in the file not containing the search string. In this case, the search string is empty, so FIND displays all the lines that aren't empty, which is every line in the file.

—Richard Penn

Checking on Windows

Smarten up your batch files—and keep them from wreaking havoc with your system—by helping them figure out whether Windows is running.

by Robert L. Hummel

These days, only a few DOS diehards still maintain that Windows is a passing fad. Most users have made their peace with Microsoft's graphical interface and have discovered ways to put it to work to improve their computing while continuing to make liberal use of DOS.

For the most part, you can jump from a real DOS session to Windows and a full-screen Windows DOS session without worrying about where you are. On occasion, however, you need to exercise caution. Although your eyes can't tell the difference between a real DOS prompt and a Windows DOS prompt, certain programs can.

Win95's new START command, for example, doesn't work if you execute it at a real DOS prompt. On the other hand, many older communications programs, utilities, and games refuse to load if you try to run them at a DOS prompt under Win3.1 or Win95. If they do load, they may not run correctly. The results can be disastrous.

Contributing Editor Robert L. Hummel is an engineer, consultant, and free-lance computer journalist. He also serves as Maximize Windows' *Windows editor and "Technically Speaking" columnist.*

Luckily, you can avoid running the wrong program in the wrong place by checking out the scene *before* executing finicky programs. My assembly-language listing, CHKWIN.COM (see page 54, top), and the two sample programs, DOOM.BAT (page 54, bottom) and CPROG.BAT (page 56), show how to go about it. (For advice on using Debug for this project, see "Creating CHKWIN.COM," page 56.)

Where Am I?

CHKWIN works by querying the system internally, asking whether Windows is running. When you execute CHKWIN at a DOS prompt and it discovers that Windows is running, it displays Windows' version number on screen. (Windows 95 identifies itself as Windows 4.0.) CHKWIN also indicates whether Windows is running in standard mode (available only under Windows 3.0 and 3.1) or enhanced mode (the default for all Windows versions). For example, if you type CHKWIN while working in a DOS session under Windows for Workgroups 3.11, you see the following response:

```
Windows Ø3.11 is running
in enhanced mode
```

Similarly, running CHKWIN under DOS 6.22 produces this message:

```
Windows is not running
```

Of course, if CHKWIN contented itself with reporting its results on screen, it wouldn't be very useful. To communicate with your batch programs, CHKWIN returns an exit code you can test with an ERRORLEVEL command. If Window 3.xx is running, it returns an exit code of 3; under Win95, it returns a value of 4. If Windows isn't running at all, CHKWIN returns a zero.

Look Before You Execute

When I'm working in Windows 3.1, I typically use CHKWIN to prevent myself from making mistakes that might crash my system. Because long stretches of work on the PC make me drowsy, I periodically pump up my adrenaline level with a quick game of Doom. Starting Doom at a Windows 3.1 DOS prompt, however, locks up my system; I lose any unsaved work in the programs that were running in the background.

To prevent disaster, I rely on a batch program called DOOM.BAT, which warns me when Windows is active. DOOM.BAT starts by executing

CHKWIN.SCR creates the executable program CHKWIN.COM, which determines whether Windows is running.

```
N CHKWIN.COM
A 100
JMP  018C
DB "CHKWIN 1.0 Copyright (c)"
DB " 1995, Robert L. Hummel"
DB D A A 24
DB "Windows is not running"
DB D A 24
DB "Windows ??.??"
DB " is running in $"
DB "standard mode"
DB D A 24
DB "enhanced mode"
DB D A 24
MOV  AH,09     ;Display string
MOV  DX,0103   ; copyright
INT  21        ; thru DOS
SUB  SI,SI     ;Exit code=0
MOV  AX,160A   ;Is Window active?
INT  2F        ; through DOS
MOV  DX,0136   ;Not running message
OR   AX,AX     ;AX>0 means not
JNZ  01C3      ; jump to end
MOV  DI,0157   ;Put characters here
MOV  AL,BH     ;Get major version
MOV  SI,AX     ;Save for exit code
CALL 01CD      ;Convert to text
INC  DI        ;Skip decimal point
MOV  AL,BL     ;Get minor version
CALL 01CD      ;Covert to text
MOV  AH,09     ;Display string
MOV  DX,014F   ; is running message
INT  21        ; through DOS
MOV  DX,016C   ;Say standard mode
CMP  CL,02     ; if CL=2
JZ   01C3      ; jump to end
MOV  DX,017C   ;Enhanced mode
MOV  AH,09     ;Display string
INT  21        ; through DOS
MOV  AX,SI     ;Get exit code
MOV  AH,4C     ;Terminate process
INT  21        ; through DOS
AAM
OR   AX,3030   ; Convert AL to 2
XCHG AH,AL     ; characters and store
STOSW
RET

RCX
D6
W
Q
```

End

CHKWIN to look for Windows. (This batch file redirects CHKWIN's output to the NUL device to prevent it from appearing on screen as CHKWIN executes.) A subsequent ERRORLEVEL command tests the value of CHKWIN's error code. If it's 3 or higher, the screen clears and displays a warning. If CHKWIN doesn't detect Windows, the batch file immediately launches Doom.

Off to a Good Start

CHKWIN also comes in handy when I find myself working with Win95's new START command. If you've moved to Win95 but haven't investigated START yet, it's time you got acquainted. It promises to deliver unprecedented power into the hands of DOS users. START's syntax is what gives it an edge:

```
START [/M|/MAX|/R][/W] application
  [arguments]>|document.ext
```

where *application* is the name of the DOS or Windows application you want to run. A /M switch indicates that you want to run the specified application in a minimized window. /MAX maximizes the application's window; /R restores a window to its default size. (If you don't provide a size switch, START uses the default.) The /W switch tells Windows to suspend the DOS session in which you executed the START command until you exit the application you're launching.

arguments represents any parameters you want to pass to the application; *document.ext* represents a filename. You can use the latter parameter to take advantage of Win95's built-in file associations. When you name a document type

DOOM.BAT shows how to use CHKWIN.COM to prevent a resource-hungry program from crashing when it tries to run under Windows.

```
@ECHO OFF
REM
REM Start Doom only if Windows not active
REM

CHKWIN > NUL
IF ERRORLEVEL 3 GOTO WARNME

CD\DOOM
DOOM
GOTO ENDIT

:WARNME
CLS
ECHO ***** Exit Windows before running Doom.
ECHO ***** Better yet, get back to work.

:ENDIT
```

End

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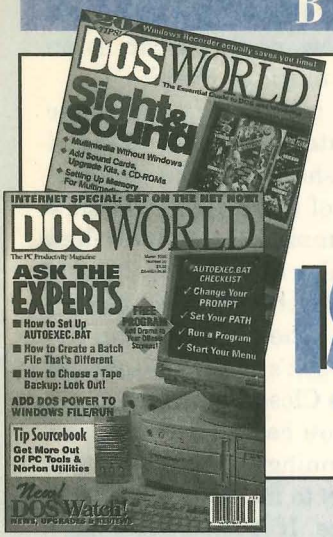

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CPROG.BAT shows how to use CHKWIN with Windows 95's new START command. If Windows 95 isn't running, the batch file starts it before executing the START command.

```
@ECHO OFF

REM Launch programming environment
REM and support files for C++

CHKWIN
IF ERRORLEVEL 4 GOTO DOIT

REM Windows isn't running. Start it
REM and tell it to run this program.

CLS
ECHO ***** Starting Windows 95 *****

WIN C:\BAT\CPROG.BAT
GOTO ENDIT

:DOIT
START /MAX MSDEV.EXE
START /M C:\WINDOWS\NOTEPAD.EXE
START /M C:\WINDOWS\CALC.EXE
START /M C:\COMMAND.COM
START /R C:\WINDOWS\CDPLAYER.EXE

:ENDIT
EXIT
```

End

that Win95 recognizes, it launches the appropriate application automatically. For example, you can launch Excel by specifying the name of a spreadsheet file:

```
START TAXES.XLS
```

But although Win95's START command makes running multiple applications easy, it doesn't do a thing to prevent you from starting them in a DOS session in which Win95 isn't present. For that, you need CHKWIN. Pairing CHKWIN and START lets you create a batch program that safely loads an entire suite of programs and documents for any purpose at any time. All it takes to get things started is a double-click of the mouse.

For example, I use CPROG.BAT (above) to set up the applications I use most often when programming. It loads my compiler (MSDEV.EXE) in a maximized window and then starts Windows' Notepad and Calculator, plus a new DOS session, as minimized entries on the Taskbar. Finally, it starts CD Player in a standard-sized window, so that I can listen to soothing music as I work.

To make running the batch file easy, I created a shortcut to it and placed the shortcut on my desktop. To get rid of the original window (the one running CPROG.BAT when the other files are loaded), I right-clicked on the shortcut and selected Properties. Then I clicked on the Properties box's Program tab and checked the Close on Exit box.

Before you can use START, you must be running Win95. CPROG.BAT uses CHKWIN to make sure Win95 is in residence. If it isn't, CPROG.BAT starts Win95 and passes itself as a command-line argument to Windows.

You can use the same technique to create shortcuts to other batch files that open more than one window. Starting these batch files will be easy and trouble-free. With CHKWIN on duty, you can be certain your batch file won't proceed unless conditions are right. ■

CREATING CHKWIN.COM

To use CHKWIN.COM, you must first create the corresponding Debug script, CHKWIN.SCR. Using DOS's Edit or an editor that saves files in ASCII (text) format, type the instructions in the listing exactly as shown. You don't need to type the semicolons or the comments that follow them, but you may find them useful for future reference.

Press the Enter key after each line, including the last one. Also, be certain to enter a blank line just before the instruction RCX by pressing Enter twice. When you're done, save the file under the appropriate name and exit your editor.

After verifying that you've created the file correctly, make sure that Debug is in your current directory or in a directory listed in your AUTOEXEC.BAT's PATH statement. Then create the executable program by typing the following command at the DOS prompt:

```
DEBUG < CHKWIN.SCR
```

This command tells DOS to execute Debug and take its input from CHKWIN.SCR instead of from the keyboard. When Debug encounters the instruction Q in the last line of the file, it terminates and returns control to DOS. If all goes well, you'll have created the executable file CHKWIN.COM.

To use your new program, copy the COM file into the directory in which you store your batch files or utility programs or into your C:\DOS directory, so that it's available to you at the command line.

—R.L.H.

Window 95 Shortcuts: Short *Is* Sweet

Discover the power of a new breed of icon that lets you design a comfortable and efficient desktop structure.

by Doug Lowe

Ask several people to name the strongest features of Windows 95, and you'll probably get strikingly similar responses: faster disk access . . . better resource management . . . long filenames . . . Plug and Play. I can support all those nominations, but I'd also add a candidate of my own: shortcut icons.

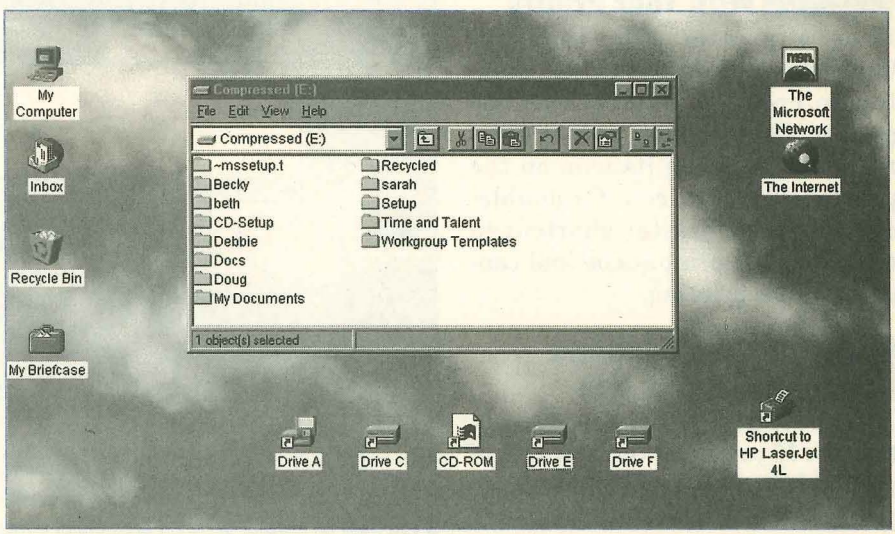
Usually called *shortcuts*, these icons let you create references to files without making copies of the files themselves. For example, you can place shortcuts to your favorite programs on the Win95 desktop. When you double-click on the icon, Win95 locates the program file to which the shortcut refers and runs it.

If you're an experienced Windows 3.1 user, you're probably thinking that shortcuts are simply Program Manager icons by another name. Think again: There's a world of difference between the two.

For starters, shortcuts can represent any type of Win95 object: program files, documents, data files, folders (formerly called *directories*), and even disk drives, printers, or networked computers. In contrast, Program Manager icons can represent only programs, or files you've taken the trouble to associate with programs.

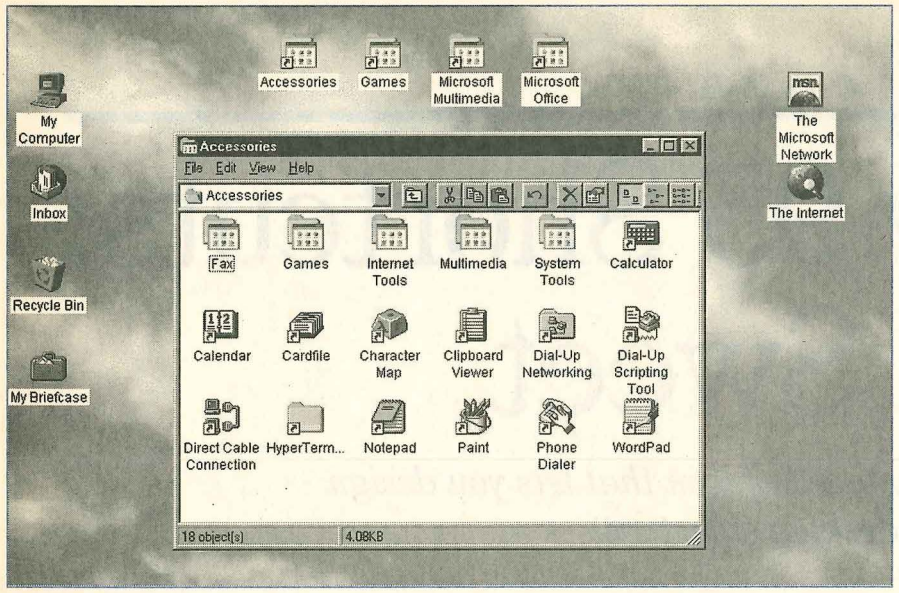
In addition, Win95 lets you place shortcuts directly on the desktop or in folders on your hard disk. You can even place certain types of shortcuts in e-mail messages and send them to your friends and coworkers. Win3.1 restricts Program Manager icons to Program Manager groups.

The truth is, Win95's shortcuts are liberating. They free you from the rigid hierarchical structure of folders, helping you get where you're going with a couple of mouse clicks. The only trouble is, it's sometimes hard to decide how to make the most of this capability. I've got several suggestions.



Get quicker access to your drives and printers by placing shortcuts for them on your desktop.

Contributing Editor Doug Lowe is DOS World's "Q&A" columnist and the author of more than 20 computer books, including Networking for Dummies *(IDG Books Worldwide). He also serves as a feature writer for* Maximize Windows *magazine.*



All it takes to recreate your Win3.1 program groups under Win95 is a little dragging and dropping.

IDEA #1 Stay in the Driver's Seat

Place shortcuts to each of your disk drives—hard disks, your CD-ROM drive, and floppy drives—right on your desktop. (See the first screen shot, page 57.) That way, you can easily access any drive by double-clicking on its desktop icon. Right-clicking on a drive shortcut opens a menu containing options such as Find, Copy Disk, and Format. (For details, see "The Long and the Short of It," opposite.)

IDEA #2 Stay in Touch With Your Printer

Drag a printer icon from My Computer and drop it on the desktop to create a shortcut to the printer. Then you can print a document by dropping its icon on the printer-shortcut icon. Or double-click on your printer shortcut to check out the print queue and cancel or pause printing.

IDEA #3 Take Windows 3.1 with You

There's something to be said for continuity. If you need the security of your old Win3.1 Program Manager groups while you get to know Win95, you can easily use shortcuts to simulate them. (See the second screen shot, above.) Just create a folder to represent a Program Manager group; then drag a shortcut for each program you'd like to store there into the "group" folder. Finally, create a shortcut to the folder on the desktop.

(To add a folder to a disk from Explorer or My Computer, open the folder that will contain the new folder; select File/New/Folder; type a new folder name; and press Enter.)

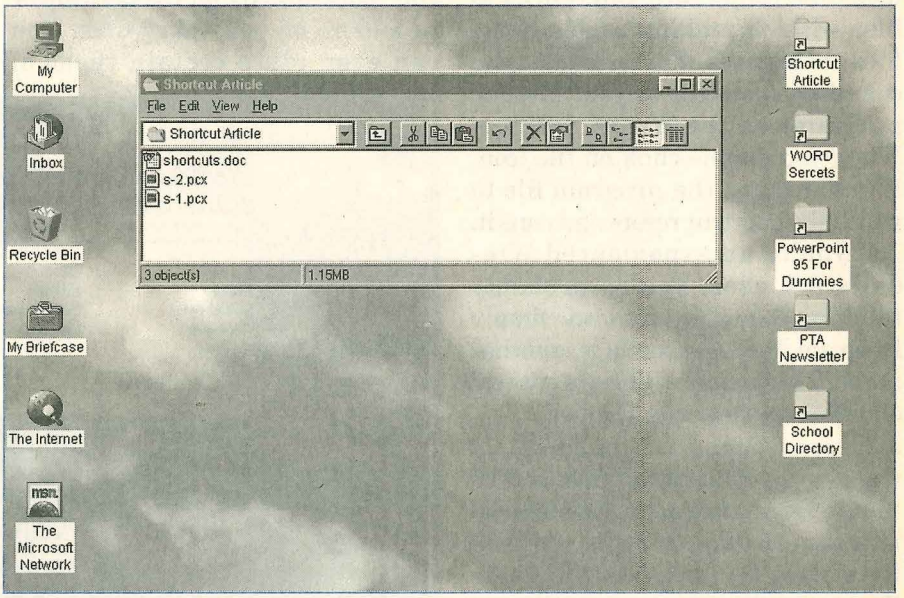
IDEA #4 Take a Project-by-Project Approach

Place a shortcut to the folder containing the files for a project on which you're working, directly on the desktop. (See the third screen shot, below.) That way, you can easily access the files by double-clicking on the folder's shortcut. You don't have to remember on which drive the folder is located, or worry about navigating through several layers to gather all the documents for the various programs you're using for your current project.

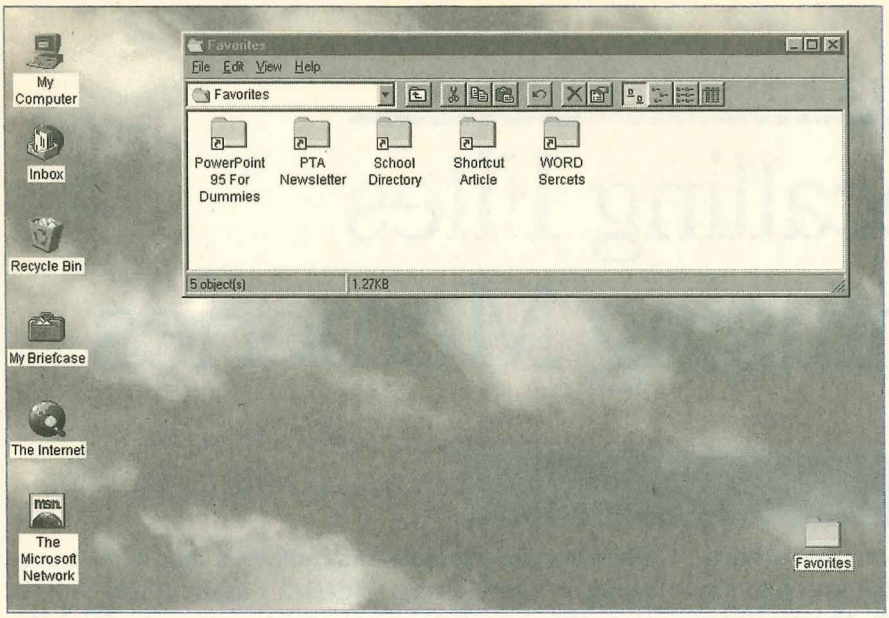
IDEA #5 Play Favorites

If you visit the same places, programs, and files day after day, create a favorite-places shortcut. Then gather up files and folders from different portions of your hard-disk structure, from different drives if your computer has more than one hard disk, or even from different computers if you're on a network.

The best approach is to create a single folder (call it `Favorites`, if you like); then place shortcuts to the folders and files you visit often in this folder. (See the fourth screen shot, opposite.) Thereafter, for quick access to those files and folders, use



If you work on several different projects at a time, it makes sense to organize each project in its own shortcut folder.



For a clean, uncluttered look, consider organizing your most-visited folders within a Favorites folder and then placing a shortcut for it on your desktop.

an application's File/Open command to open Favorites from within that application.

Of course, if you prefer, you may implement this structure by placing shortcuts to your favorite folders, programs, and files directly on the desktop. That way, they're accessible the moment you start your computer. If you have a number of favorite places, however, they may clutter up your desktop.

Perfecting Your Technique

When you master the technique of creating shortcuts, you'll find that customizing your desktop is easy. It's so easy, in fact, that you'll probably want to do lots of tinkering, deleting shortcuts for files and applications, moving shortcuts into other folders, and even dumping entire folders full of shortcuts. Luckily, the procedure for deleting shortcuts is both simple and safe.

You can remove a shortcut at any time by clicking on its icon to select it, then pressing the Del key. Or you can drag the shortcut to the Recycle Bin and drop it. Both actions delete the shortcut but not the original file. To move a shortcut to another location, drag it there—onto another shortcut folder, for example—and drop it. To create a copy of a shortcut, right-drag it to its new location and drop it. When Win95 displays a menu, choose Copy.

Because a shortcut is only a reference, the original file is unaffected when you delete a shortcut. If you delete a real file, however, consider whether you've stranded any shortcuts referring to that file. When you delete a file, Win95 doesn't check shortcuts to it; you might not discover the problem until you try to use the shortcut. Usually, though, the Recycle Bin holds onto everything you delete until you empty it or the Bin fills up.

Renaming or moving a file can create similar problems. But, when you try to use a shortcut to a file you've renamed or moved, Win95 looks for a file with the same creation date and time as the original file. If it finds a match, it updates the shortcut. It rarely makes a mistake, because the creation time is stored to the fraction of a second.

That's a nice touch—one of many Microsoft built into shortcuts. You almost can't go wrong, and, if you do, it's easy to set things right. ■

THE LONG AND THE SHORT OF IT

Windows 95 offers several ways to create a shortcut. The method I find easiest requires just four steps:

1. Locate the object, folder, file, or program for which you want to create a shortcut. For example, if you want to create a shortcut to a folder on your hard disk, double-click on the My Computer icon, double-click on the hard disk's icon, and navigate your way through your folders until you find the right one. (If you're more comfortable working from a two-pane view of the folders on your hard disk, use Explorer instead. Right-click on the Start button and choose Explore to see this view.)
2. Depress the right mouse button while dragging the object to the location where you want the shortcut to appear. For example, right-drag a folder out onto your desktop.
3. When you release the right mouse button, a menu appears. Choose the Create Shortcut Here option from the menu. Win95 displays an icon with an arrow in its lower-left corner and chooses a shortcut name for you, prefacing it with the words *Shortcut to*.
4. Because the icon includes an arrow that helps distinguish shortcut icons from icons that refer directly to objects, there's no point in including *Shortcut to* in the name of the shortcut. As a result, I usually rename my shortcuts so that they simply take on the name of the original object. To change the name, click on it, pause, and click again. Interestingly, if you create several shortcuts in succession and then delete *Shortcut to* from each label, Win95 catches on and stops adding these words when it creates a shortcut label.

—D.L.

START-UP CLINIC

Recalling Files And Confusing Memories

by Jack Nimersheim

One of the things I enjoy about writing "Start-Up Clinic" is that it keeps me connected to my roots, so to speak. Each month, the mailbag contains questions that make me revisit topics I haven't thought about in years: rudimentary terminology, basic operations, and so on. Those of us who joined the so-called computer revolution early on tend to forget that recent recruits often need help understanding what we consider fundamental PC concepts. That doesn't mean we're smarter than these newcomers; we just made our mistakes earlier. (We also enjoyed the luxury of having weeks, sometimes months, to absorb the kind of information that today's neophyte often must apply within minutes of turning on his or her new computer.) This month's mailbag includes a couple of letters dealing with basic issues that frequently confuse new users.

If history repeats itself, so do puzzling questions about computing, such as "What good is that Scroll Lock key, anyway?"

Same Word, Different Objects

I was wondering how DOS's Undelete program works. A friend of mine claimed that he had less memory available after deleting some files from his system. How many bytes would a deleted file take up, as opposed to a regular file? Is this phenomenon related to Undelete or to something else?

Dan Eisenberg
Afton, New York

Before I explain how Undelete works, it might be wise to clear up another point of potential confusion this letter discloses: the word *byte*. The *American Heritage Dictionary* defines a homonym as "a word that is used to designate several different things." (The familiar word *foot*, for example, can indicate a unit of measurement or a human appendage.) Based on this definition, the term *byte* and its digital cousins—*kilobyte*, *megabyte*, and so on—qualify as super-homonyms, and their different usages can easily bewilder uninitiated computer users. Let's see whether I can clear up the confusion surrounding the terminology.

It takes about 35MB (megabytes) of disk space to install the various files associated with Windows 95 on your hard drive, yet you need only 8MB of RAM to run this newest Windows version. These seemingly inconsistent Win95 requirements represent two different items: storage space and memory, respectively. New users often mistake one for the other. People ask whether they must add memory to their systems before installing a new program, based on its listed requirements (20 to 25MB). The answer is no: Those figures represent the disk space required to store a program's files on your hard disk.

Conversely, you'll also hear people say that their computers contain more memory than any PC ever built (350MB, 520MB, and so on)—confusing the size of their disks with the actual memory installed in their systems. I suspect that this dual use of the word *megabyte* has confused Dan's friend.

When DOS deletes a file, it doesn't remove from your disk the data that file contains. Instead, DOS marks as invalid the information within a disk's directory and file-allocation table (FAT) that it normally uses to find this data. In essence, these are pointers, so to speak, directing DOS to the various areas of a disk on which different portions of the actual file are stored—much as traffic signs direct us through city

streets. Deleting a file, then, is like removing a city's traffic signs. The streets would still exist—you'd just have trouble finding them. DOS's Undelete utility restores these pointers and makes a file usable again.

The answer to Dan's question lies in the way DOS keeps track of deleted files, so that the Undelete utility can restore them successfully. It doesn't use memory for this operation, so it's doubtful that Dan's friend had less memory available after running Undelete. DOS does set up a table in a hidden disk file, however, in which it keeps track of recently deleted files. I assume, then, that Dan's friend notices a reduction in available storage space, not memory—the potentially confusing scenario I outlined earlier—as he deletes and "undeletes" files. If he's experiencing a drop in memory, the problem lies elsewhere. It's unrelated to deleting files from his disk.

One more note: DOS eventually reuses those portions of a disk containing data associated with deleted files. The time, then, during which you can successfully "undelete" a file is limited. The sooner you try, the better.

Skeleton Key

I enjoy fiddling around with various DOS commands. I understand just about every one, even those I don't use, and I know for the most part how my PC works. There's one item on every computer, however, that I haven't figured out: the Scroll Lock key. What's it for?

Anthony House
St. Paul, Minnesota

With your permission, I'll resort to a pun here: The Scroll Lock key is a skeleton key, as in "skeleton in the PC closet." It's a throwback to an earlier era in the evolution of computers, when its function was to temporarily halt scrolling text on those early terminals. The key was incorporated into the design of the first PC keyboards, even though it wasn't operational, and it's never been eliminated. Today, the Scroll Lock key does nothing, unless you program it to perform a specific function in a particular program.

Get the Picture

Is there any way to have DOS's graphics utility available whenever I want to use it—and to print without entering a graphics command every time?

Harry Pedakis
Marquette, Michigan

The DOS graphics utility lets you use the Shift+Print Screen key combination to output the contents of a CGA, EGA, or VGA screen directly to your printer—provided it's one of the models DOS supports. Not many people use the graphics utility, GRAPHICS.COM, but those who do find it invaluable.

When you run the graphics program the first time, the software places itself in memory and remains there until you either remove it manually or turn off your computer. Once in memory, pressing the Shift+Print Screen key combination generates a printout of the current contents of your display. Because DOS's graphics module is a memory-resident utility—that is, it stays in memory even after you execute it—you can simply add the appropriate command (GRAPHICS) to your AUTOEXEC.BAT file to make it immediately available whenever you turn on your system.

Power Passwords

I see a number of security programs on the market. What's wrong with the password feature that comes with all computers?

James Reynolds
Gloster, Mississippi

Security software evolved because early computers lacked lock-out features—even rudimentary password protection. Times have changed, but there's still a niche for security programs.

For one thing, not every PC, even today, offers built-in password protection. A retail program is the only option available for anyone whose system lacks this feature. Even someone whose computer does offer password protection may find a commercial program desirable for several reasons, not the least of which is flexibility.

At best, a built-in password feature lets you specify a single text string that, when entered correctly during system start-up, advances you to the system prompt. At that point, you have access to every application and data file in the system. Many third-party security programs let you specify multiple passwords and associate specific system resources with each one.

For example, if several individuals use a single computer containing sensitive information, and you don't want every user to have access to every program and data file, a security program can solve the problem. Giving different people different passwords, each associated with a specific system setup, prevents unlimited access. ■

Jack Nimersheim has been writing about computers for 15 years. He's the author of more than two dozen books and 1000 articles on computer technology. His newest work, In Plain English: Windows 95 *(Alexander Books), was released last November.*

How to Use

REPLACEABLE TEXT

Articles in *DOS World* will often give you a command that includes text you must replace with your own information. This replaceable text is in italics. For example, in the following command, you'd replace *filename* with the name of your own file:

COPY A:*filename* B:*filename*

THE CONFIG.SYS FILE

In your root directory is a file called CONFIG.SYS. Like AUTOEXEC.BAT, this file is in ASCII, and you can view your CONFIG.SYS file with the TYPE command. A typical CONFIG.SYS might look like this:

```
DEVICE=C:\DOS\HIMEM.SYS
DEVICE=C:\DOS\EMM386.EXE NOEMS
DOS=HIGH,UMB
FILES=50
BUFFERS=10
SHELL=C:\DOS\COMMAND.COM
  C:\DOS\ /E:1024 /P
DEVICE=C:\DOS\ANSI.SYS
DEVICE=C:\DOS\SETVER.EXE
```

The rules for handling CONFIG.SYS are the same as they are for AUTOEXEC.BAT: Always back up the original file before you modify it and always have an emergency boot disk available. As with AUTOEXEC.BAT, changes you make to CONFIG.SYS won't take effect until you restart your computer.

ANSI.SYS AND THE ESCAPE CHARACTER

When an article says you must have ANSI.SYS installed, it means that the MS-DOS file ANSI.SYS should be in your \DOS directory, and the following line should be in your CONFIG.SYS file:

```
DEVICE=C:\DOS\ANSI.SYS
```

Some articles that discuss ANSI.SYS will also ask you to create a batch file that uses the escape character. Unfortunately, there's no uniform method of doing so. If you use EDIT, the text editor that comes with MS-DOS, you can make an escape character by pressing Ctrl+P and then the Esc key. The escape character appears on screen as a small left-pointing arrow. If you're using another text editor or word processor, check its instructions for information on how to enter the escape character.

THE AUTOEXEC.BAT FILE

Most people have a batch file called AUTOEXEC.BAT on their hard disks. If you want to look at it, first go to your root directory by typing CD\. Type DIR to make sure AUTOEXEC.BAT is there. Then type the following command:

```
TYPE AUTOEXEC.BAT | MORE
```

A simple AUTOEXEC.BAT file might look like this:

```
@ECHO OFF
PROMPT $P$G
PATH=C:\DOS;C:\WINDOWS;C:\WP51;C:\BAT
C:\DOS\SMARTDRV.EXE
C:\MOUSE\MOUSE.COM
C:\DOS\DOSKEY.COM
SET TEMP=C:\TEMP
```

When a *DOS World* article instructs you to modify your AUTOEXEC.BAT file, always make a backup copy of the original AUTOEXEC.BAT first. The most common names for your backup copy are AUTOEXEC.BAK or AUTOEXEC.BK. The latter lets you save different versions of your backups—for example, AUTOEXEC.BK1 and AUTOEXEC.BK2. You create a backup copy with the following command:

```
COPY AUTOEXEC.BAT AUTOEXEC.BAK
```

Also, you should have an emergency boot disk available whenever you modify AUTOEXEC.BAT. (See the accompanying section on the facing page, top.) It will let you access your hard drive in case you make an error that locks up your computer. Changes you make to AUTOEXEC.BAT won't take effect until you restart your computer.

BATCH FILES

A batch file is a text file that tells MS-DOS to do a series of tasks. The filename of a batch file always ends with the extension .BAT.

A batch file must be in plain-text format. For example, a batch file might consist of the following lines:

```
CD\
DIR /S /P
```

This batch file moves you to the root directory (CD\) and then gives you a list of all files in all directories (/S), pausing after each full screen (/P).

Every batch file needs a name. In such cases, you should pick your own name. Batch-file names carry the same limitations as any other DOS filename; you're limited to eight characters, plus a three-character extension. A batch-file name must always use the .BAT extension.

To avoid confusion and unexpected results, don't give any batch file the same name as another program or DOS command. For example, VCOPY.BAT is an acceptable name for a batch file, but not COPY.BAT or XCOPY.BAT, because COPY and XCOPY are the names of DOS commands. To run or execute a batch file, type its name at the DOS prompt. For example, to run a batch file called VCOPY.BAT, type VCOPY at the DOS prompt.

Creating and Saving

Using EDIT. If you have DOS 5 or later, you can create a batch file using EDIT. EDIT usually resides in your DOS directory. Type EDIT and enter your batch file. When you're done, press Alt+F and choose the Save option. Type the name of your batch file (make sure you add the extension .BAT) and press the Enter key.

Using other word processors. Most word processors don't save files in plain text; they include other characters, such as control characters that handle such matters as page formatting and typefaces. Most word processors, however, do give you an option to save in plain text. The procedure varies from one word processor to the next. For example, when you save a file in WordPerfect 5.1, you choose ASCII Text (DOS) as your Format option.

This Magazine

MAKING AN EMERGENCY BOOT DISK

Sometimes a *DOS World* article will suggest that you create a *bootable floppy*—a floppy disk that serves as an emergency system disk. That is, if your computer for some reason can't access your hard drive, you can start your computer from the emergency floppy. You should always have an emergency system disk available, but it's particularly important when you modify AUTOEXEC.BAT or CONFIG.SYS because you may change those files in such a way that your computer won't start from the hard drive. To create a system disk:

1. **Insert a floppy disk in drive A.**
2. **At the command line, type FORMAT A: /S (all existing information on the floppy will be lost).**

DOS first formats the floppy disk. Then it copies three DOS system files to the floppy disk: IO.SYS, MSDOS.SYS, and COMMAND.COM.

The first two are hidden files; you won't see them if you type DIR A:. If you have the disk-compression program DoubleSpace on your computer, the FORMAT command above will also copy DBLSPACE.BIN, a third hidden file, to the floppy disk.

After you've created your system disk, you should copy a few other basic files to your floppy. Go to your \DOS directory and copy the following files: FORMAT.COM, EDIT.COM, EDIT.HLP, QBASIC.EXE, UNDELETE.EXE, CHKDSK.EXE, FDISK.EXE, and SETUP.EXE.

DEBUG SCRIPTS

A Debug script is a list of assembly-language instructions you convert to an executable program using the program DEBUG.EXE in your \DOS directory.

Creating the script. A Debug script must be in plain text. The procedure for creating the script is the same as for creating a batch file. You can use DOS's EDIT program, or you can use a different text editor or word processor and save the script in plain text format.

Creating an executable program. After creating and saving the script, type the following command at the DOS prompt:

```
DEBUG < filename
```

where *filename* is the name of the Debug script you created. For example, if the name of your Debug script is KEYPRESS.SCR, you'd type this line:

```
DEBUG < KEYPRESS.SCR
```

at the DOS prompt. The executable program created by Debug will have the extension .COM. The name of the executable file is determined by the contents of the script. Our convention is to use the same name for the executable file as we do for the script. Thus, the executable file created by KEYPRESS.SCR will be named KEYPRESS.COM. Once you've created the executable file, you run it by typing its name at the DOS prompt. To run KEYPRESS.COM, type KEYPRESS.

PATHS AND THE PATH STATEMENT

DOS World articles often tell you to make sure that a particular file is in a directory included in your PATH statement. This lets you runs a .COM, .EXE, or .BAT file from any directory on any drive.

For example, an author might tell you to create a batch file called TEST.BAT, put it into a subdirectory called \BAT, and put the subdirectory into your PATH statement. You can then execute TEST.BAT by typing TEST from anywhere on your drives, without having to change to the \BAT directory first.

The PATH statement is a line in your AUTOEXEC.BAT file. It gives DOS a list of directories to search for requested files. Here's an example:

```
PATH=C:\DOS;C:\WINDOWS;C:\BAT
```

When you type TEST at the DOS prompt, DOS looks for the program first in the current directory, then in the root directory, and then, in order, the \DOS, \WINDOWS, and \BAT directories. When it finds TEST.BAT in the \BAT directory, it executes the batch file.

Continued on page 64

BASIC DEFINITIONS

DOS prompt. Also known as the *command prompt*. By default, the DOS prompt looks like this: C:\>. This is where you type the instructions to run programs or DOS commands.

Boot, boot up, reboot. The process of starting or restarting your computer. Turning on your computer is *booting* or *booting up*. Pressing the key combination Ctrl+Alt+Del restarts, or *reboots* your computer. So does pressing the reset button, if your computer has one.

Extensions. When we refer to a program by its common name (for example, the DOS command FORMAT) without an extension, you can assume that the extension is .COM or .EXE. When we refer to a batch file, we always include the extension .BAT. QBasic program names must always include the .BAS extension.

ASCII. American Standard Code for Information Interchange. For our purposes, an ASCII file is a plain text file, one that consists entirely of the characters you see on your keyboard.

Directories. Your hard drive has a main directory called the *root* or *home* directory. Directories created off the root directory are called *subdirectories*. When we provide the name of a subdirectory, it will look something like this: \WORD\FILES. Here, the root directory has a subdirectory called WORD, which in turn has a subdirectory called FILES.

File placement. We assume that the following files are in your root directory: AUTOEXEC.BAT, CONFIG.SYS, and COMMAND.COM. We also assume that your DOS files are in a DOS subdirectory, usually called \DOS.

Keystroke combinations. When you should hold down one key while pressing a second, we indicate it this way: Alt+F4 (press the Alt key and hold it down while you press the F4 key). When you should press one key, release it, and press another, we indicate it this way: Alt, F4 (press the Alt key, release it, then press the F4 key).

QBASIC PROGRAMS

QBasic is the programming language included in all versions of MS-DOS since version 5. The name of a QBasic program always ends with the extension .BAS.

Typing in the listing. Type QBASIC at the DOS prompt and press Enter to start. Now type in the listing as printed, pressing Enter at the end of each line. Note that when a line in the listing is indented two spaces from the line above and doesn't start with a command or keyword, it's a continuation of the previous line. Other indentations, or none at all, indicate a new line.

Subroutines and functions. QBasic listings often include subroutines and functions, and typing them is confusing at first. They begin with a line containing the keyword SUB or FUNCTION. Note that when you type a SUB or FUNCTION line and press Enter, all other lines you've typed will disappear from view. This can be disconcerting for beginning programmers. There's nothing to worry about—your listing is safe. To avoid screen clutter, QBasic simply hides other parts of your listing when you're typing in a subroutine or function. To see the other parts of your program, open the View menu at the top of the QBasic screen, then select SUBS. The SUBS dialog box will appear, letting you select the part of the program listing you want to view.

Saving a listing. Save your partially completed listing as you go along, rather than waiting until you've typed in the whole thing. To save, open the File menu, choose Save, and type in a filename when QBasic prompts you. We suggest using the filename specified in the magazine article. Subsequent saves of your listing won't prompt you for a filename, but will instead use the filename indicated the last time you saved the listing.

Running a program. After you've typed in the entire listing and saved it a final time, you can run the program by selecting Start from the Run menu or pressing Shift+F5. If QBasic finds an error, it will stop the program and highlight that line. To run a QBasic program (a .BAS file) stored on your hard drive, start QBasic, then select Open from the File menu. Choose from among the .BAS files displayed in the open dialog box to load the program into QBasic, then select Start from the Run menu or press Shift+F5. To stop a QBasic program, press Ctrl+Break; select Exit from the File menu to return to DOS.

***DOS World* BBS.** Typing and debugging a long listing is time-consuming. If you have a modem, our listings are always available on *DOS World*'s bulletin-board system (BBS) at 603-924-3181. There are no connect-time charges; you pay only for the phone call. Set your communication program to 8 data bits, no parity, 1 stop bit (8, N, 1). Dial the number and wait for the "Connect" message. If you're a first-time user, the system will ask you to enter your name and choose a password. Then it will display a general information screen, followed by a questionnaire requesting your address, phone number, and so on, so that we may set up your account. From this point, on-screen prompts are the same for all users. A series of messages present the latest BBS news; press Enter after each message to go to the next screen. From the Bulletin Menu, Bulletin #1 offers information on navigating the Main and File Menus, with instructions for listing, marking, searching for, and downloading files. ■

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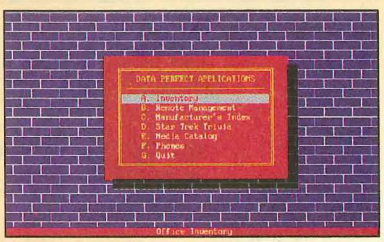

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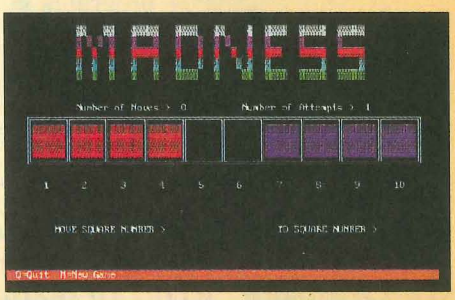

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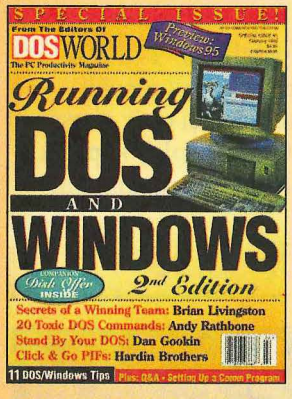

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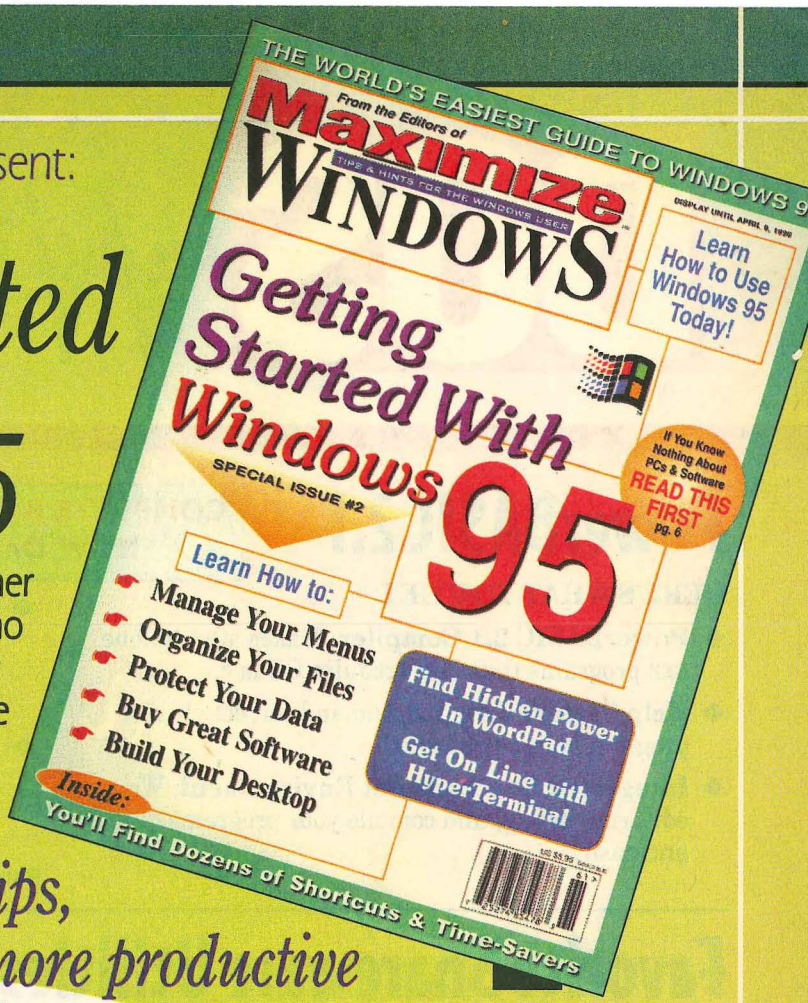

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Q&A

Edited by Doug Lowe

Q I've heard about the impending computer crisis that will hit when the clock strikes midnight on December 31, 1999. Are mainframes the only computers that can't handle the change from 1999 to 2000, or will this problem affect my PC, as well?

A The computer industry has known about this problem for decades, but put off doing anything about it, evidently because the year 2000 seemed so far off. There are two trouble spots. First, some systems can't make the transition from December 31, 1999, to January 1, 2000. In addition, many programs assume that the first two digits of the year are 19 and store only the last two digits. Thus, 1996 is stored as 96. When we reach the start of a new millennium, such programs will be 100 years off.

The consequences of this oversight will range from mildly humorous to catastrophic. Babies will become eligible for Social Security because the government's computers will think they're 100 years old. Anyone lucky enough to live to the age of 106 will receive a kindergarten registration packet from the local school district. Your best customers will get collection notices, because the computer will think they have 100-year-old unpaid bills. Who knows whether your home mortgage, life-insurance premiums, and income-tax depreciation schedules will be calculated properly?

Unfortunately, mainframe computers aren't the only systems that will have trouble making the transition from 1999 to 2000. To find out whether your PC has a problem, try this simple experiment. Use MS-DOS's TIME and DATE commands to set your computer's time and date to 11:57 P.M., December 31, 1999. Then turn off your computer and leave it off for five minutes.

When you turn it back on, execute the DATE command again. It should say January 1, 2000. I'll bet money it won't. On my computer, the date resets to January 1, 1994; some computers reset to 1980. Few handle the date change correctly; you'd think manufacturers would have dealt with this problem years ago. My computer is only six months old and will probably still be in use when the year 2000 rolls around.

Once you reset your computer's date, most newer spreadsheet programs, such as Excel and Lotus 1-2-3, will handle date calculations properly. But not all programs have this capability. Older database managers, for example, look only at the last two digits of the year. Even if your computer knows that it's the year 2000, your database will be out of step with the times.

Q My computer doesn't boot from the hard-disk drive. Instead, it freezes after displaying the amount of memory installed. If I insert a bootable disk into drive A, the computer starts fine, and I can access everything on drive C. What's wrong?

A I can suggest three possible causes for this type of problem:

1. You may have a damaged master boot record (MBR). Among the vital information contained in the MBR, which resides in the first sector of the disk, is the starting disk location of drive C. Without this information, MS-DOS won't boot.

Fortunately, you can fix the MBR. Boot from a floppy disk, type `C:` at the DOS prompt to log onto your hard disk, and then type `FDISK /MBR`. The undocumented switch `/MBR` rebuilds your master boot record.

Be careful, though. A virus called Monkey can cause the FDISK /MBR command to erase all data on your hard disk. As a precaution, use an up-to-date antivirus program to scan your hard disk *before* you use this command.

2. You may have a damaged MS-DOS system file. To correct this problem, boot from the floppy disk. Copy SYS.COM from your hard disk's \DOS directory to the floppy disk; then type the command `SYS C:`. This copies new versions of the MS-DOS system files to the hard disk.

3. Your hard disk may have an unreadable sector on the portion of the disk where the master boot record or another boot program is stored. Use a surface-analysis program, such as The Norton Utilities' Disk Doctor, to test it. Unfortunately, if one of those sectors is damaged, your only option is to replace the disk drive.

Q Long ago, I got into the habit of making backup copies of a program's installation disk before putting the software on my hard disk. But with Microsoft's latest offerings, includ-

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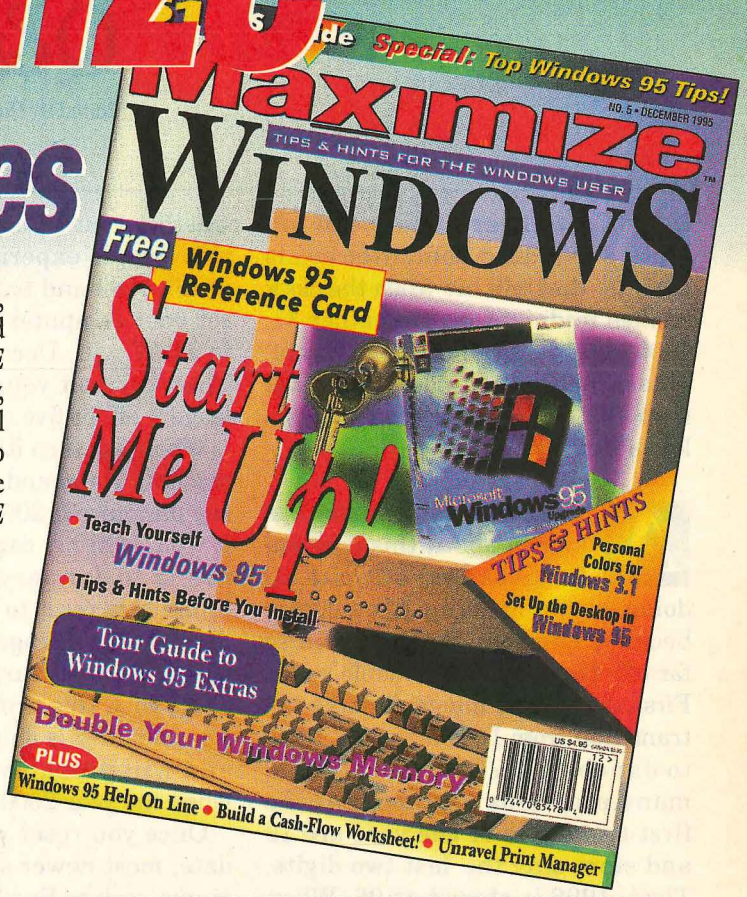

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TAKE CHARGE WITH MAXIMIZE WINDOWS

ing Windows 95, I can't make reliable copies. Can you explain why?

A To reduce the number of floppy disks required for its software, Microsoft Corp. recently switched to two new disk formats, called Distribution Media Format (DMF) and WinImage, which let programmers record 1.72MB of data on a standard 1.44MB disk.

Unfortunately, few programs can copy these disks, which is another reason Microsoft went to this format; it's now more difficult for users to make illegal copies of its software.

Because floppy disks are more reliable these days, and most software comes on several disks, most users no longer make backup copies before installation, and so Microsoft felt few users would object to the new format. If you must have backup copies of your program disks, Microsoft will sell them to you for a nominal fee. (The last time I checked, each disk cost $5; call 800-426-9400.)

By the way, Microsoft isn't the only company that has moved in this direction; IBM now uses a format called XDF. Other firms will probably follow suit.

Given the growing popularity of this approach, you'd be wise to invest in software that can copy specially formatted disks. For more information on one such shareware product, **CopyQM**, see "Shareware Exchange," page 22 in this issue.

Q I recently upgraded from MS-DOS 6.2's DoubleSpace to MS-DOS 6.22's DriveSpace. I noticed that I still have a file named DBLSPACE.BIN on my computer. Can I safely delete this file?

A It's usually safe to delete this file. But I can think of two circumstances under which you should keep it:

- Don't delete it if you've used DoubleSpace to compress floppy disks and you haven't yet converted the compressed floppies to DriveSpace. You can't access those disks without DBLSPACE.BIN.
- You also need this file if you used the MS-DOS program MSBackup to back up files to floppy disks. You'll need DBLSPACE.BIN to access any backup disks you created with MS-DOS 6.0 or 6.2. If you created all your backup disks with MS-DOS 6.22, you no longer need DBLSPACE.BIN. ■

Contributing Editor Doug Lowe is the author of more than 20 computer books, including The Only DOS Book You'll Ever Need *(Murach),* The Least You Need to Know About DOS *(Murach), and* The Microsoft Press Guide to DoubleSpace *(Microsoft Press). He also serves as a feature writer for* Maximize Windows *magazine.*

Windows Tip

Logging Start-Up Errors

If you're having trouble loading Windows 3.1, start Windows by typing this command:

```
WIN /B
```

The /B switch creates a BOOTLOG.TXT file in your \WINDOWS directory. As each driver is processed, Windows adds a LoadStart statement to the text file. If loading goes without a hitch, it then adds the LoadSuccess statement. If a driver problem arises, however, Windows places a LoadFail statement in front of the driver's name and displays a failure code:

```
LoadStart = COURF.FON
LoadFail = COURF.FON Failure code is Ø2
```

This can help you diagnose Windows problems, because you'll see exactly which drivers aren't functioning properly.

Because /B always appends new information to the end of an existing BOOTLOG.TXT file, it's a good idea to rename or delete any files called BOOTLOG.TXT before using the /B switch to troubleshoot new problems.

The accompanying table, "Boot-Log Error Codes," lists the most common error codes appearing in BOOTLOG.TXT.

—Ken Johnson

BOOT-LOG ERROR CODES

VALUE	MEANING
0	out of memory
2	file not found
3	path not found
8	insufficient memory to start application
10	incorrect Windows version
11	invalid EXE file (not a Windows EXE file or an error in the EXE file)
12	OS/2 application
14	unknown EXE file type
15	failed attempt to use an EXE file created for an earlier version of Windows

DW MARKETPLACE

READERS: To help you learn more about the many interesting products available for your PC, **DOS World** has created the **DW MARKETPLACE**. This special section makes it easy to contact companies offering a wide range of accessories, software, and services. Listings are grouped by product category for your convenience.

VENDORS: Listings in the **DW MARKETPLACE** are sold by the column inch.
For more information or to place your ad, contact Linda Guyette at ***800-343-0728*** *or* ***603-924-7271.***

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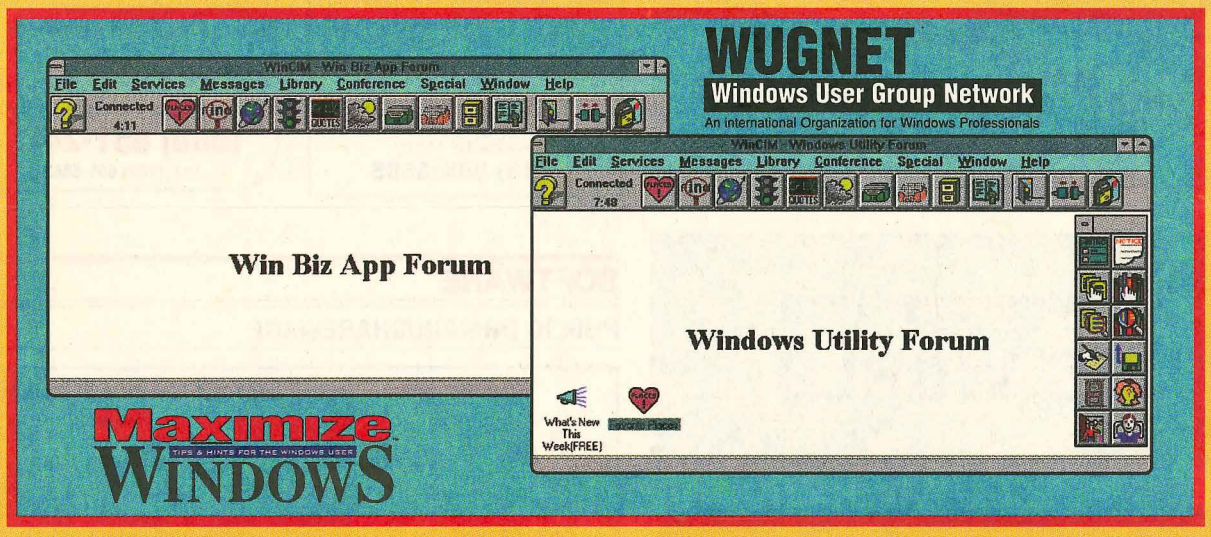

Join us on CompuServe, where *Maximize Windows* is the sponsor of two new forums: the Windows Utility Forum (GO WINUTIL) and the Windows Business Applications Forum (GO WINBIZ).

Both new forums are part of CompuServe's Microsoft Connection and are operated by the Windows Users Group Network (WUGNET), the world's largest on-line Windows user community. It's where you'll find on-line answers to your toughest Windows questions.

You'll also find 1000's of great files to download, including:

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- Drawing, graphics, and desktop-publishing files
- Schedulers and contact managers
- CAD, science, and engineering applications
- Document-management tools
- Business accessories of all kinds

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- Program launchers
- File and disk managers
- System and memory utilities
- Configuration tools
- Windows95 utilities
- Diagnostic programs
- Shells and task managers
- Printing and font utilities
- Icon and mouse utilities
- DOS tools

Maximize Windows editors and authors, along with WUGNET experts, will be on the forums for discussion and to answer your questions. Join our on-line community and maximize your Windows expertise.

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See you on CompuServe!

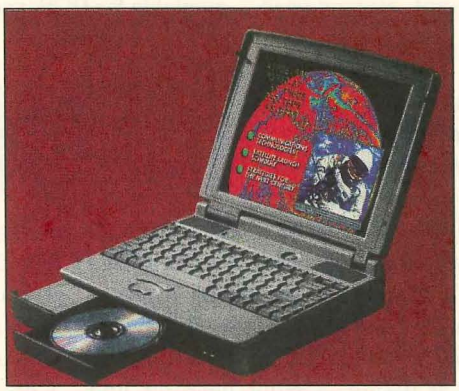
DOS Watch

News and reviews of DOS and Windows enhancements, upgrades, and products

Edited by Steven F. Smith

A New Reason to Love CD-ROM

Imagine going to your favorite video outlet and renting a full-length, full-motion movie—on CD-ROM, for your computer. Then imagine watching those flicks with studio-engineered surround sound. Or, how about a CD-ROM that can hold nearly ten times the amount of data stored on a standard disc? And then imagine it being affordable, and compatible with your current system.



Technology of the future? Not if Toshiba and other compact-disc kingpins have their way. By late summer, in fact, it could all become reality as Toshiba—in a not-so-coincidental alliance with the home-entertainment giant Time-Warner—will introduce its **Super Density Disc** player (estimated at about $300), which will conform to motion-picture-quality MPEG-2 standards, offer as much as 8.5 gigabytes of storage on a double-layered, single-sided disc, and as much as 17 gigabytes on a double-sided disc.

While several compact-disc and computer manufacturers have been developing their own versions of double-layered disc technology over the past several years, Toshiba is among the first to introduce it to the PC-consumer marketplace. For any MPEG-2-ready computer, gone forever are the days of distorted, brief, and postage-stamp-sized multimedia and video viewing. For game and general-interest multimedia users, the improved sound and video quality will also enhance the "virtual reality" feel of a new generation (read "not ready yet") of software.

Clearly, however, the Toshiba/Time-Warner alliance is designed to present a new venue for the motion-picture industry, with hopes of making the home PC a soulmate of (if not an eventual replacement for) of America's number-one favorite appliance—the VCR. So why would anyone watch a movie on a computer? Unlike a typical home VCR, Toshiba's new SD-ROM player is expected to offer surround-sound for full-length motion pictures, plus options to choose from among 32 subtitled languages.

And while Hollywood scrambles to jump on the CD bandwagon, the first generation of Toshiba SD-ROM drives will offer total backward compatibility so that users can still enjoy their current CD-ROMs and audio compact discs. In addition, Super Density discs and players will be available in a rewritable storage format, so that information can be recorded and erased.

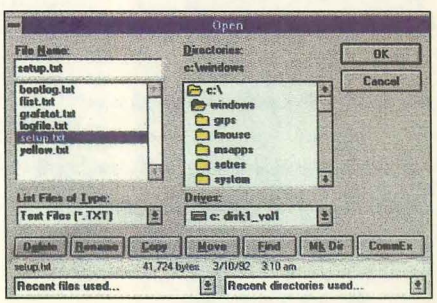
Among Toshiba's competitors is Philips, the grandfather of CD product manufacturers, which has also announced plans for its own high-density CD-ROM. The Philips version emphasizes a double-layered, single-sided format and up to four and a half hours of full-motion, full-screen video.

One-Stop File Management

If you've ever started to open a Windows 3.1 file but then had to back out to File Manager or DOS because you couldn't remember the name, be sure to check out **CommEx**, a Windows utility that consolidates several common file operations under the familiar File/Open and File/Save As dialog boxes.

Building on the traditional dialog box, CommEx adds file-management buttons such as Delete, Rename, Copy, Move, Find, and MkDir; a file-information line listing the size, date, and time of the selected file; and rosters of recently accessed files and directories, in both the current application and any other application. CommEx also beefs up Windows' Find File dialog, letting you specify up to ten filenames and directory paths.

Not yet available for Win95 or NT, CommEx requires a 386 or later, with Win3.1, 3.11 or Workgroups. Suggested price is $17, available from Cottonwood Software, P.O. Box 6546, Leawood, KS 66206; 913-663-3022.



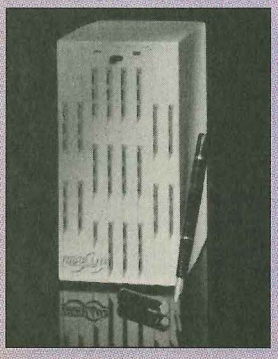
Continued on page 76

HARDWARE NOTABLES

■ The **Bonsai Microfax** ($379; 800-356-1199) is a compact, all-in-one fax transmitter and scanner. You don't need a dedicated fax line; Bonsai runs from any phone, whether in the office or in your car. A standard transmission takes 25 seconds. The Microfax weighs just 20 ounces and is fits into your briefcase or coat pocket.

■ Server Technology has introduced its Windows95 version of **Remote Power On/Off** ($169.95; 800-835-1515), a phone-activated power switch. Designed to solve typical remote-computing tasks for any DOS, Windows, or OS/2-based computer, the new version of Remote Power On/Off offers Win95 shut-down support and reboot capabilities. The shut-down feature eliminates possible file corruption should you fail to close Win95 before shutting off your computer.

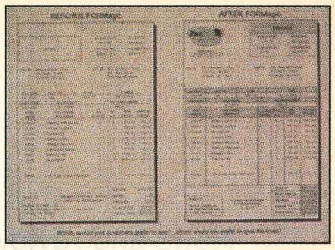
■ Tripp Lite's ultra-compact **BC Personal UPS** systems ($119; 312-755-5400) are designed for first-time home-computer users or anyone working in a small office. The Personal UPS is equipped with surge, spike, and line-noise filtering, and further protects equipment by transferring to battery power during low-voltage (brownout) or high-voltage conditions.



Forms As You Like Them

Turn any standard business form or correspondence tool into a professional-looking document with **FORMagic**, a DOS and Windows utility that automatically converts standard documents to ones that can utilize the graphics tools present in your word processor, text editor, or desktop-publishing package. Create a form—invoice, memo, letterhead, and so on—and then "overlay" it with your favorite document software, and FORMagic will turn that information into a professional-looking layout, storing each form overlay until you're ready to download it.

Like Word for Windows' Auto Format command, FORMagic give your standard documents a facelift without your having to make changes for spacing, tabs, shading, and other elements; you can add anything from logos and signatures to shading, borders, and lines. FORMagic also includes DOS prompt utilities, letting you control repetitive and volume "print shop"-type operations via batch files.



FORMagic editions are available for DOS (version 2.1 and later) and Windows (3.1 and later) and support most Hewlett-Packard LaserJet, DeskJet, and compatible printer models.

Suggested price is $149. For more information, contact ProHelp Systems Inc., 353 Westminister Lane, Lilburn, GA 30247; 770-279-2510. Check out the free demo via the Internet at **http://www.prohelp.com**.

DOS/WINDOWS Suite Shop

JP Software's command-line efficiency tools for both DOS and Windows are now available on one compact disc: **The JP-CD Suite**. This CD-ROM incorporates all of the company's renowned 4DOS and Take Command utilities.

4DOS and its versions for OS/2 and Windows NT let you accomplish management tasks such as listing, copying, deleting, and moving multiple files or file types with a single command, right from the DOS command line. Take Command, now also available in a Windows 95 edition (known as Take Command/32), supports the same command-line features available in the 4DOS utility, but presents them in a fully graphical Windows interface.

Suggested price is $99; manuals are available separately for $29. Contact JP Software Inc., P.O. Box 1470, Arlington, MA 02174; 617-646-3975.

THAT'S WHAT THEY SAID . . .

You can now order a pizza via the Net. Those of us for whom time has value will still use a goofy low-tech device called the telephone, but the Net will undoubtedly be the ordering method of choice for unsocialized geeks who fear human interaction and have hours to spare fiddling around on line. Come to think of it, that's the basic Net paradigm.

—**Stephen Manes** ("Full Disclosure," *PC World*, June 1995)

I'm firmly convinced that if grade-Z movie director Ed Wood were alive today, he would be a major force in the interactive game industry.

—**John Edwards** ("Behind the Screens," *CompuServe Magazine*, September 1995

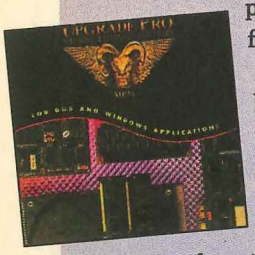
All the things IBM has done in the last decade that end in S/2—PS/2, OS/2—aren't working out. The handwriting is on the wall for OS/2. And maybe by 1996, Big Blue will have an OCR engine capable of reading what it says: "Technically advanced products don't always win out." The fat lady has sung.

—**Bill Howard**
("PC Predictions for '96," *PC Magazine*, January 9, 1996)

Solving the Upgrade Mystery

If you want to make sure you purchase the right upgrade components for your PC, from memory to hard drives, MPM's **Upgrade Pro** for DOS and Windows will quickly analyze your system and identify all vital enhancement information.

Following a quick installation from either disk or CD-ROM, UpgradePro begins by helping you identify your PC brand, system, and submodel, and then presents specific options for various upgrades.



If you're looking to boost your system memory, for example, Upgrade Pro may present a chart showing options for 8, 12, and 20MB upgrades, including components required specifically for your system. Once you gather the information, you can order parts directly through MPM's GoldenRAM memory-products dealers.

DOS system requirements are version 4.0 or later, a 386PC or faster, and 640K of available RAM.

You can take Upgrade Pro for a test spin via the Internet at **http://goldenram.com**, or contact MPM at 15285 Alton Parkway, Irvine, CA 92718; 800-222-8861.

BARGAIN HUNTERS BEWARE

They could be spawning viruses, passing along inferior products, and, worst of all, ripping you off. "They" are software pirates. Although they're often difficult to hunt down, cooperative efforts involving the international watchdog trade group **Business Software Alliance** (BSA) and local law-enforcement teams may have recently caught one of the industry's most notorious dealers.

Thomas "Nick" Alefantes of Los Angeles, known in the software industry as Captain Blood, was arrested in November on suspicion of counterfeiting a registered trademark. Law-enforcement officials suspect that Alefantes copied more than a million dollars' worth of software and resold it over the past five years through ads in trade publications and via his own mail-order business.

Among the products seized by the Los Angeles County District Attorney's office were copies of brand-name CAD and networking programs, which normally sell for as much as $4000 but which Captain Blood allegedly resold for $79. It's also alleged that he duplicated popular word-processing, spreadsheet, and e-mail packages and resold them for as little as $5 a copy.

During the seizure, law-enforcement officials also found three computers, high-speed duplicating equipment, a CD-ROM write machine, a shredder, printers, two handguns, handcuffs, and $15,000 in cash.

Member companies of the Business Software Alliance are Autodesk, Bentley, Intergraph, Lotus Development, Microsoft, Novell and the WordPerfect Applications Group, the Santa Cruz Operation, and Symantec. Representatives from Autodesk and Microsoft accompanied L.A. police on the Captain Blood raid.

The BSA warns consumers to pay heed to the expression "If it sounds too good to be true, it probably isn't" when shopping for PC software via mail order. In addition, PC consumers should carefully examine retail packaging for signs of piracy: typos, no bar code, no corporate address, and so on. Furthermore, the BSA is encouraging software dealers in Europe and the United States to sign a code-of-ethics pledge to sell only legal software; in return, their business names will be promoted to customers as reliable points of purchase.

Since its inception in 1988, the BSA has filed more than 600 lawsuits worldwide against those suspected of copyright infringement. The organization also operates 35 antipiracy hotlines around the world for callers seeking information about copyright matters, or to report suspected incidents of unauthorized software copying. Callers in the U.S. can dial 800-688-2721, or contact the BSA via the Internet at **http://www.bsa.org/bsa**.

Continued on page 79

UPGRADE UPDATE

■ Cougar Mountain Software (800-388-3038) has released version 10.0 of ACTPlus Accounting and StoreWare Point of Sale for DOS.

ACTPlus Accounting ($299.50) features nine integrated business modules, including general ledger, accounts receivable, accounts payable, purchase-order, and payroll applications. Users can add or change information quickly, and receive up-to-the-minute financial information.

The program also features two levels of security and prints invoices, statements, purchase orders, and IRS Form 1099 and W2.

StoreWare Point of Sale ($499.50) is similar in function, featuring easy-to-use tools for general ledger, accounts receivable, inventory, payroll, order entry, accounts payable, check reconcilliation, and purchase orders.

■ **Wildcat! 4.12** for DOS, a bulletin-board system from Mustang Software (upgrades begin at $30; 800-999-9619), now includes the ability to network multiple Wildcat! DOS systems for message and file sharing.

In addition, the latest Wildcat! can organize conferences into groups, features improved handling of multiple-disc CD-ROM drives, and displays file-search results with the search string highlighted.

Updated & Revised

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Cards for DOS. View Windows Card Files in DOS. Why start Windows just to view and search a card file? Cards for DOS lets you do it from the DOS prompt!

Icon Tiger. This DOS program displays Windows icons, extracts icons from Windows EXE and DLL files, and combines icons into new icon libraries. Does all this from the DOS prompt!

ClipCap. Brings the power of DOS redirection to Windows. Captures redirected DOS text to the Windows Clipboard for pasting into Windows programs.

BONUS PROGRAM! BONUS PROGRAM! BONUS PROGRAM!

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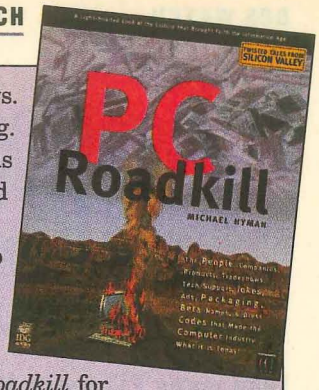
Call 1-800-349-7327

Each program on this disk is shareware, which means you are free to use and evaluate each one for a period of time, then pay a registration fee to the author if you plan to continue using the program. Benefits of registration often include product support and upgrade offers. Full details on registering each program are included on the disk.

Bookshelf Bloopers and Bonanzas



• Aimed at students, small-business owners, and practically anyone who uses a PC, the ***McGraw-Hill Encyclopedia of Personal Computing*** ($89.95 hardcover; 800-822-8158) is designed to provide fingertip access to hundreds of facts and easy-to-understand explanations of computer terminology. The book's more than 1200 articles (each only about 500 to 750 words) are arranged in alphabetical order and are extensively cross-referenced. Topics range from ASCII and bulletin-board systems to hypertext and object-oriented graphics.

• Did you know that Steve Jobs was once a primal-scream instructor? Or that dBase was originally created to track horse races? Or that IBM once recalled 32,000 power adapters for ThinkPads after discovering they could cause electrical shocks?

Michael Hyman, author of IDG Books' *Borland C++ for Dummies* and *Visual C++ 2 for Dummies*, takes a lighthearted look at the culture that brought forth the Information Age in ***PC Roadkill: Twisted Tales from Silicon Valley***. It's a compilation of odd and often humorous tales concerning the development of the computer industry and its personalities: "Of the strange messages embedded in programs. Of mistakes like the Reeference manual and the Softwa Reengineering sign. What happens behind the scenes at glamorous trade shows. What's on top of the Intel building. And you'll learn about the famous toga party, industry bands, and many secret code names."

Hyman confesses that "by no means is this book complete. There are hundreds of stories left untold. And many more in the making." You can check out *PC Roadkill* for yourself, at computer and retail bookstores for $19.99 (paperback).

• A series of books that Osborne/McGraw-Hill executive editor Scott Rogers says are "written with the assumption that readers have better things to do with their time than spend days learning the ins and outs of the latest software," cover quick-hitting essentials about moving up to Windows 95 and onto the Internet.

The five titles in the ***Busy People*** series cover Word, Excel and Access for Windows 95, Win95 itself, and the Internet. Emphasis is on vital skills and shortcuts users must know to get a particular task done quickly and accurately. In addition to shortcut suggestions, each chapter in the *Busy People* series features a quick-reference section of essential tasks, time-saving tips and strategies, fast ways to learn and remember important jargon, and pitfalls and problems to avoid.

Continued on page 80

Real Help from Real People

Like many PC users, Robert White thought it would take only a few minutes to install a familiar spreadsheet program in his wife's new computer. And then like many PC users, Robert White ran into trouble.

So Robert White called customer support, was put on hold for 20 minutes, and waited. And waited. Finally, he gave up.

The next night, White sat holding the phone once more, still waiting to get through. And while doing so, he thought of his brother Bill, a computer consultant. Maybe between the two of them, White thought, they could figure out a way around the usual busy signals and recordings, to help other frustrated computer users get quick solutions for common problems.

Thus was born **PC Crisis Line**, run by brothers Robert White of Raleigh, North Carolina, and Bill White of Palo Alto, California.

Bearing the motto "Dump the manual—talk to a real person," PC Crisis Line is a fully staffed technical help line guaranteeing either assistance with your computer difficulties or no charge for the service—plus quick handling of your computing problem by a real person.

If you have a technical question, you can call PC Crisis Line at 800-828-4358. If you don't get the help you need, there's no charge; instead you'll receive any information staffers have available from other sources who may be able to offer assistance.

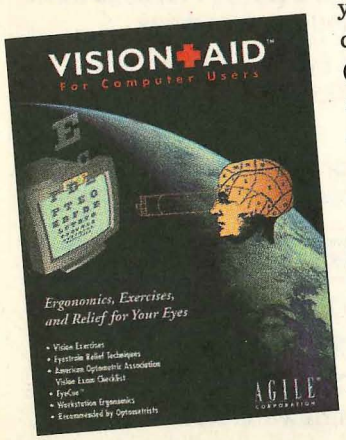
If PC Crisis Line can help you, it'll charge $3 a minute (there's a two-minute minimum) for staff members' expertise. PC Crisis Line's technicians are most familiar with IBM-compatible systems, with most major hardware and software products, and with common difficulties encountered when computing.

FOR YOUR Computing Comfort

If your wrist is worn out from mousing around and your eyes are seeing two cursors instead of one, it's time to get some health benefits—but these don't require preapproval from your insurance company:

• **The Original Mouse Couch**, from MK Productions ($29.95; 800-657-7637), is a standard mouse pad—but stitched into a cushion that rests in your lap. The idea is to let you sit back and use your mouse without the shoulder or wrist strain that can come from desktop activity. It's stuffed with fiberfill, measures about three inches tall, and is about the size of a standard sheet of notebook paper.

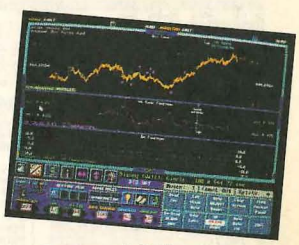
• **Vision+Aid for Computer Users**, from Agile Corp. ($24.95; 800-241-7320), is designed for anyone who uses a PC for extended periods of time or performs close work with any application. It's essentially a workout for your eyes, providing exercises, ergonomic data (including workstation suggestions), and eye-strain reduction techniques. Vision+Aid also features Eyecue, a small chart you can attach to your monitor as a handy reminder to perform eye-strengthening exercises and to recall eye-strain relief techniques.



Keeping Track of Investments

Following the growth of your children and the health of your stocks are careful disciplines that may well call for some type of assistance beyond your memory, or even the traditional pencil and notebook.

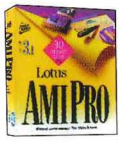
For the financial investor who wants to improve his or her earnings, Stock Blocks Inc. has introduced a DOS-based technical-analysis program called **Insider TA** ($99; 800-697-1617). By sizing up your stock's history and past behavior, Insider TA can predict future price moves. As patterns develop, the program recognizes the best buy/sell times so that you can improve your financial success rate. Enter your own portfolio data manually, or download files from any on-line stock-data service. System requirements are DOS 3.3 or later, 2MB of RAM, and 2MB of disk space; a VGA monitor, a mouse, and a 486 are recommended.



To keep track of every vital stage of your child's life, there's **From Diapers to Diplomas** ($13.95; 513-652-1353). This small-but-handy DOS program can document your child's life from birth to graduation, including his or her accomplishments, special friends, and favorite memories. More importantly, however, it logs vital statistics such as medical and dental records; for example, you can easily call up a list of all inoculation dates or instances of allergic reaction.

Pull-down menus and on-line help are among the basic features you'll find in this easy-to-use program. System requirements are DOS 2.1 or later and 512K of RAM; 2MB of hard-drive space is recommended.

LOST YOUR GRANNY'S PHONE NUMBER?



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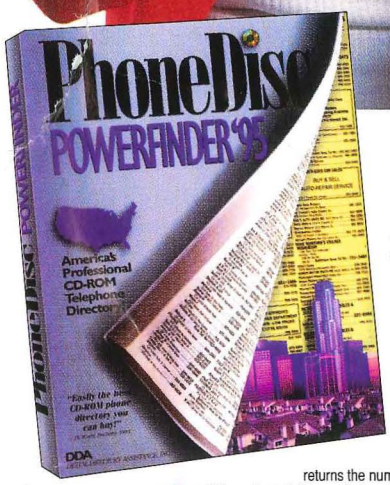

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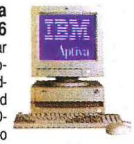

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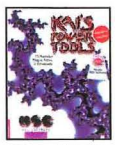

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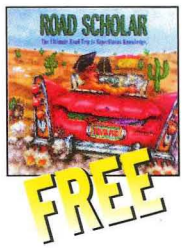

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